

GREEN CHIMNEYS POOL/GYM BUILDING HVAC UPGRADE

BREWSTER CAMPUS
400 DOANSBURG ROAD
BREWSTER, NY 10509



LOCATION PLAN

BREWSTER CAMPUS
LOCATION

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REBID SET - 12/23/2020

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ER

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STATE OF NEW YORK
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PROFESSIONAL ENGINEER

GREEN CHIMNEYS
CHILDREN SERVICES
HVAC UPGRADE

400 Doansburg Road, Brewster, N.Y.

FILE PATH: N:\PROJECT DIRECTORIES\1 - E & R Projects\50-Green Chimneys Form & Mill\50-19-01 Green Chimneys Pool & Gym HVAC Upgrade\CAD\50-19-01 COVER.dwg	EAR PROJECT NO.	50-19-01
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CP

1. ALL HVAC WORK SHALL BE INSTALLED IN ACCORDANCE WITH 2018 INTERNATIONAL MECHANICAL, FIRE, PLUMBING, FUEL GAS CODE AND BUILDING CODE, NYS ENERGY CONSERVATION CONSTRUCTION CODE, ALL LOCAL CODES AND GENERALLY ACCEPTED STANDARDS.
2. HVAC CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, PIPING, VALVES, ACCESS DOORS, HANGERS, FITTINGS AND MISCELLANEOUS COMPONENTS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER THE HVAC SYSTEMS COMPLETE, OPERABLE, AND IN ACCORDANCE WITH APPLICABLE CODES AND GENERALLY ACCEPTED INDUSTRY STANDARDS.
3. HVAC CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FULLY COORDINATED WITH ELECTRICAL, AND PLUMBING TRADES FOR ENGINEERS REVIEW. SUBMIT.
4. HVAC CONTRACTOR SHALL SEAL AROUND ALL PIPE AND DUCT PENETRATIONS THROUGH FIRE RATED WALLS, FLOORS AND CEILINGS WITH HILTI INTUMESCENT FIRE STOP MATERIALS TO MAINTAIN FIRE AND SMOKE RATINGS, DUCTS PENETRATING FIRE RATED WALLS, FLOORS AND CEILINGS SHALL BE INSTALLED WITH FIRE DAMPERS AND ACCESS DOORS WHETHER SPECIFICALLY SHOWN ON THE DRAWINGS OR NOT. PROVIDE FIRE STOP SEALANT ON ALL EXISTING PIPING AND DUCTWORK PENETRATING NEW FIRE RATED WALLS CONSTRUCTED AS PART OF THE PROJECT.
5. HVAC CONTRACTOR SHALL NOT DRILL OR CUT ANY STRUCTURAL MEMBERS WITHOUT PERMISSION OF ENGINEER.
6. ALL EQUIPMENT SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.
7. HVAC CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROL WIRING (24V) FOR SYSTEMS SHOWN ON HVAC DRAWINGS AND DESCRIBED IN HVAC SPECIFICATIONS, INCLUDING ALL RELAYS, TRANSFORMERS, CONDUIT, JUNCTION BOXES, CONDUCTORS, THERMOSTATS, APPURTENANCES AND ALL NECESSARY EQUIPMENT TO MAKE SYSTEMS COMPLETE AND OPERABLE.
8. HVAC CONTRACTOR SHALL PAY FOR ALL PERMITS AND INSPECTION FEES REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
9. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH SHEET METAL AND AIR CONDITIONING HVAC CONTRACTORS NATIONAL ASSOCIATION (SMACNA) DUCT STANDARDS. PROVIDE ACCESS DOORS OR TURNING VANES ON ALL CHANGES IN DIRECTION IN ACCORDANCE WITH SMACNA STANDARDS.
10. ALL CONTROL WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (N.E.C.) AND ALL LOCAL CODES. ALL CONDUCTORS SHALL BE COPPER WITH THHN INSULATION IN EMT CONDUIT. 120V/1" - MINIMUM CONDUCTOR SIZE #12. 24V - MINIMUM CONDUCTOR SIZE #18. MINIMUM CONDUIT SIZE SHALL BE 3". CONDUIT INSTALLED OUTDOORS SHALL BE GALVANIZED.
11. ALL DUCTWORK SHALL BE FABRICATED WITH MINIMUM 26 GA GALVANIZED STEEL INCLUDING ROUND DUCTS.
12. FINAL LOCATIONS OF ALL THERMOSTATS AND SENSORS SHALL BE APPROVED BY OWNER PRIOR TO INSTALLATION, COORDINATE IN FIELD.
13. HVAC CONTRACTOR SHALL PROVIDE ACCESS DOORS FOR ALL VALVES AND DUCT ACCESSORIES CONCEALED IN WALLS/CEILINGS. ACCESS DOORS SHALL HAVE APPROPRIATE FIRE RATING TO MAINTAIN INTEGRITY OF WALL/CEILING. TURN OVER ACCESS DOORS TO GENERAL CONTRACTOR FOR INSTALLATION.
14. HVAC CONTRACTOR SHALL COORDINATE FINAL LOCATIONS OF ALL PIPING IN FINISHED AREAS TO ENSURE CONCEALMENT OF ALL PIPING IN WALLS, FLOORS AND CEILINGS.
15. HVAC CONTRACTOR SHALL FURNISH AND INSTALL VALVE TAGS, PIPE LABELS, DUCT LABELS AND EQUIPMENT TAGS. PROVIDE ALL TAGS AND LABELS IN A 3-RING BINDER WITH LOCATION, DESCRIPTION AND FUNCTION. SEE SPECIFICATIONS FOR MORE INFORMATION.
16. HVAC CONTRACTOR SHALL PROVIDE ALL AIR AND HYDRONIC BALANCING FOR ALL NEW HVAC SYSTEMS. PROVIDE ALL NECESSARY MOTOR, DRIVE, BELT CHANGES AND ETC. SEE SPECIFICATIONS FOR BALANCE PROCEDURES AND ADDITIONAL REQUIREMENTS. CONTRACTOR SHALL COMFORT BALANCE ALL HVAC SYSTEMS TO THE SATISFACTION OF ENGINEER.
17. HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SUPPLEMENTAL STRUCTURAL STEEL SUPPORT ASSOCIATED WITH NEW HVAC EQUIPMENT HUNG OR SUPPORTED FROM OR ON THE EXISTING BUILDING. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO STEEL FABRICATION AND INSTALLATION OF EQUIPMENT.
18. HVAC CONTRACTOR SHALL INSTRUCT GREEN CHIMNEYS SCHOOL KEY PERSONNEL ON OPERATION OF ALL HVAC SYSTEMS. SET ALL THERMOSTATS TO TEMPERATURES AND SCHEDULES AS DIRECTED BY GREEN CHIMNEYS SCHOOL.
19. HVAC CONTRACTOR SHALL INCLUDE IN BID ALL MATERIALS, RIGGING AND LABOR REQUIRED FOR THE COMPLETE AND PROPER INSTALLATION OF THE MECHANICAL SYSTEM.
20. HVAC CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO THE BEGINNING OF WORK, AND COORDINATE WORK ALL OTHER TRADES.
21. PROVIDE ALL PIPE OPENINGS THROUGH WALLS WITH PIPE SLEEVES.
22. HVAC CONTRACTOR SHALL SCHEDULE ALL SHUT-DOWNS OF EXISTING BASE BUILDING EQUIPMENT/SYSTEMS WITH GREEN CHIMNEYS SCHOOL AS REQUIRED FOR PERFORMING WORK. NOTICE SHALL BE GIVEN NO LESS THAN (5) FIVE BUSINESS DAYS PRIOR REQUIRED SHUT-DOWN. SHUT-DOWNS SHALL NOT BE PERFORMED WITHOUT APPROVAL FROM GREEN CHIMNEYS SCHOOL.
23. BEFORE DISPOSING OF REMOVED EQUIPMENT, VERIFY WITH GREEN CHIMNEYS SCHOOL WHAT ITEMS ARE TO BE TURNED OVER TO SCHOOL DISTRICT AND KEPT FOR STOCK.
24. UNLESS OTHERWISE NOTED CEILING REMOVAL, TEMPORARY PROTECTION, AND REPLACEMENT AS REQUIRED PERFORMING SCOPE OF WORK SHALL BE BY THIS CONTRACTOR. CEILING TILES DAMAGED AS A RESULT OF THIS CONTRACTOR'S WORK SHALL BE REPLACED AT NO ADDITIONAL COST TO THE SCHOOL.
25. ALL MOTOR STARTERS AND DISCONNECT SWITCHES FOR HVAC EQUIPMENT SHALL BE FURNISHED BY THE HVAC CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED. DISCONNECT SWITCHES FURNISHED BY THE HVAC CONTRACTOR FOR HVAC EQUIPMENT SHALL BE HEAVY DUTY TYPE AND SHALL BE NEMA 3R WHEN LOCATED OUTSIDE.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR DRAINING AND REFILLING EXISTING HYDRONIC AND DOMESTIC WATER SYSTEMS AS REQUIRED FOR COMPLETION OF WORK.
27. CONTRACTOR SHALL GUARANTEE ALL WORKSMANSHIP AND MATERIAL INSTALLED UNDER THIS CONTRACT FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF SUBSTANTIAL COMPLETION. CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE DEFECTIVE WORK (INCLUDING ALL REQUIRED LABOR AND MATERIAL) AT NO ADDITIONAL COST TO OWNER DURING THE GUARANTEE PERIOD.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING START-UP OF ALL NEW EQUIPMENT, CONTROLS, AND ETC. TO ENSURE CORRECT OPERATION OF INSTALLED DEVICES.
29. CONTRACTOR SHALL PROVIDE OWNER WITH CATALOG DATA, OPERATING INSTRUCTIONS, MAINTENANCE INSTRUCTIONS, AND RECORD (AS-BUILT) DRAWINGS OF ALL COMPLETED WORK.
30. ALL NEW HOLES IN WALLS AND FLOORS SHALL BE CORE DRILLED BY THIS CONTRACTOR. PRIOR TO CORE DRILLING FLOORS, RADAR SCAN FLOOR SLABS. USE CAUTION WHEN CORE DRILLING TO AVOID DAMAGE TO EXISTING EQUIPMENT, SYSTEMS, STRUCTURE AND ETC. ANY ITEMS DAMAGED AS A RESULT OF DRILLING SHALL BE REPAIRED BY THIS CONTRACTOR AT NO ADDITIONAL COST TO SCHOOL DISTRICT.
31. LOW VOLTAGE CONTROL WIRING AND CONDUIT INDICATED TO BE REMOVED SHALL BE COMPLETELY REMOVED BACK TO SOURCE WHEN POSSIBLE. FOR INACCESSIBLE LOCATIONS WIRING AND CONDUIT SHALL BE SAFELY ISOLATED ON BOTH ENDS.
32. CONTRACTOR SHALL HIRE GREEN CHIMNEYS APPROVED ROOFING CONTRACTOR FOR ALL PATCHING, WATERPROOFING AND FLASHING OF ALL HVAC WORK. ANY ROOFING WORK SHALL NOT VOID NEW OR EXISTING ROOF WARRANTIES.
33. CONTRACTOR SHALL PROVIDE ACCESS DOORS FOR ALL VALVES AND DUCTS CONCEALED IN WALLS / CEILINGS. ACCESS DOORS SHALL HAVE APPROPRIATE FIRE RATING TO MAINTAIN INTEGRITY OF WALL / CEILING. PROVIDE TWO (2) COATS OF FINISHED PAINT. COLOR AS DIRECTED BY ARCHITECT.
34. CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, PATCHING AND PAINTING ASSOCIATED WITH HVAC WORK. PATCH OPENINGS/ AREAS WITH SIMILAR MATERIALS AND RESTORE TO ORIGINAL FIRE/ SMOKE RATING AND STRUCTURAL INTEGRITY. SEE SPECIFICATIONS AND GENERAL CONDITIONS FOR ACCEPTABLE PROCEDURES, MATERIALS AND STANDARDS.
35. HEALTH, SAFETY AND CRITICAL OPERATING EQUIPMENT SHALL NOT BE COMPROMISED WITHOUT SCHOOLS NOTIFICATION AND SCHEDULED SHUTDOWN DURING OFF HOURS AS TEMPORARY OPERATIONAL PLAN IS IMPLEMENTED AND MAINTAINED.
36. ALL PIPING SUPPORTS AND HANGERS EXPOSED TO OUTDOOR ELEMENTS SHALL BE GALVANIZED STEEL.
37. CONTRACTOR SHALL INSULATE ALL DUCTWORK RUN OUTSIDE OF THE BUILDING ENVELOPE WITH FIBERGLASS BOARD INSULATION MINIMUM R-VALUE (12.0) WITH VAPOR PROOF JACKET AND TAPED JOINTS. DUCTS RUN WITHIN THE BUILDING SHALL HAVE A MINIMUM R-VALUE (8.0) FIBERGLASS INSULATION WITH VAPOR JACKET AND TAPED JOINTS.
38. CONTRACTOR WILL COORDINATE ALL CONTROL WORK WITH TOM COLIGAN, CM3 BUILDING SOLUTIONS, 185 COMMERCE DRIVE, FORT WASHINGTON, PA 19034.

	- THERMOSTAT - ARROW INDICATES DEVICE/ZONE CONTROL		- NEW PIPING, DUCTWORK, AND EQUIPMENT		- PIPE ELBOW UP
	- FREEZE/STAT		- EXISTING TO REMAIN PIPING, DUCTWORK, AND EQUIPMENT		- GAUGE WITH BALL VALVE
	- STATIC PRESSURE SENSOR		- PIPING, DUCTWORK, AND EQUIPMENT FOR REMOVAL		- AUTOMATIC AIR VENT
	- TEMPERATURE SENSOR W/CONTROL WIRING AND 1/2" CONDUIT WITH CLEAR PLASTIC GUARD(LOCKABLE)		- BALL VALVE		- MANUAL AIR VENT
	- HUMIDITY SENSOR		- CHECK VALVE		- PIPE CAP
	- FLOW SENSOR		- CONTROL VALVE - 2 WAY		- PIPE BREAK
	- DUCT SMOKE DETECTOR		- DRAIN VALVE WITH HOSE BIB		- PIPE FLOW ARROW
	- VARIABLE FREQUENCY DRIVE		- UNION		- REVISION NOTE
	- ROUND DUCTWORK		- STRAINER WITH BLOWDOWN		- KEYED NOTE
	- 4- WAY CEILING SUPPLY DIFFUSER		- REDUCER OR INCREASER		- POINT OF NEW CONNECTION
	- CEILING EXHAUST/RETURN REGISTER		- BRANCH FROM BOTTOM OF PIPE		- LIMIT OF REMOVAL
	- FLOW ARROW		- BRANCH FROM TOP OF PIPE		- DIFFUSER/GRILLE LABEL
	- CIRCUIT SETTER		- PIPE ELBOW DN		- BACK DRAFT DAMPER
					- CARBON DIOXIDE DETECTOR

SINGLE LINE		DOUBLE LINE		SINGLE LINE		DOUBLE LINE
	- MANUAL VOLUME DAMPER				- RETURN/EXHAUST AIR RECTANGULAR ELBOW DN	
	- AUTOMATIC AIR DAMPER INTERLOCKED WITH EQUIPMENT				- ROUND ELBOW UP	
	- DUCT SMOKE DETECTOR				- ROUND ELBOW DN	
	- FLEXIBLE CONNECTION				- CENTERED TRANSITION	
	- SUPPLY/OUTSIDE AIR RECTANGULAR ELBOW UP				- OFFSET TRANSITION	
	- SUPPLY/OUTSIDE AIR RECTANGULAR ELBOW DN				- SQUARE TO ROUND TRANSITION	
	- RETURN/EXHAUST AIR RECTANGULAR ELBOW UP				- RADIUS ELBOW	
	- 45° DEGREE LEADING EDGE *BRANCH TAKEOFF				- MITERED ELBOW WITH TURNING VANES	

PHASING PLAN - HVAC CONTRACTOR IS TO SUBMIT A DETAILED WORK SCHEDULE FOR APPROVAL AND SHALL BE MODELED AFTER THE FOLLOWING PHASE PLAN:

1. PREPARATION: HVAC CONTRACTOR IS TO PROVIDE THE NEW RTU-2, BOILERS, AND ALL OTHER EQUIPMENT AND APPURTENANCES INDICATED IN THE DESIGN DRAWINGS. HVAC CONTRACTOR SHALL ORDER ALL NEW EQUIPMENT AND SHALL BE RESPONSIBLE FOR THE DELIVERY OF THE SAME TO THE PROJECT SITE. HVAC CONTRACTOR SHALL ARRIVE, REMOVE, AND Haul AWAY HVAC CONTRACTOR SHALL PREPARE FOR THE REMOVALS AND NEW WORK, INCLUDING PROVIDING THE GAS PIPING AND ELECTRICAL WORK FOR NEW BOILERS, RTU-2 AND ASSOCIATED EQUIPMENT, AND REMOVAL OF THE EXISTING BOILER FLUE GAS PIPING AND ELECTRICAL WORK. HVAC CONTRACTOR SHALL PREPARE THE REMOVALS AND NEW WORK AS SPECIFIED ON THE DESIGN DRAWINGS. THE EXISTING BOILER FLUE GAS SHALL BE TEMPORARILY REUSED AND ROUTED THROUGH THE SIDE WALL AS INDICATED ON THE DESIGN DRAWINGS. HVAC CONTRACTOR SHALL REMOVE THE EXISTING RTU-2, BOILERS AND RELATED EQUIPMENT AS TO REMAIN OPERATIONAL THROUGH THIS PREPARATION PHASE.
2. EXISTING HVAC-2 AND ERU-2 REMOVAL: ONCE FULLY PREPARED TO PROMPTLY PROVIDE THE NEW RTU-2, ROOF CURB, ASSOCIATED DUCTWORK, AND CONCRETE PAD(S), THE HVAC CONTRACTOR SHALL REMOVE THE EXISTING HVAC-2, ROOF CURB(S), ERU-2, AND ASSOCIATED DUCTWORK, AS SHOWN ON THE DESIGN DRAWINGS.
3. NEW CONCRETE PADS AND RTU-2: HVAC CONTRACTOR SHALL PROVIDE THE NEW CONCRETE PAD(S), RTU-2, AND ASSOCIATED DUCTWORK AND GAS PIPING AS SHOWN ON THE DESIGN DRAWINGS. HVAC CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE THIS EQUIPMENT PROMPTLY AFTER REMOVAL OF EXISTING EQUIPMENT TO MINIMIZE DOWN TIME. ELECTRICAL WORK, CONTROLS, AND THE GAS PIPING SHALL ALSO BE PROVIDED AND CONNECTED TO THE INSTALLED EQUIPMENT.
4. NEW BOILERS AND RELATED EQUIPMENT: HVAC CONTRACTOR SHALL PROVIDE AND PLACE THE NEW BOILERS, PUMPS, AND ASSOCIATED DUCTWORK AND GAS PIPING AS SHOWN IN FUNCTIONAL POSITION ON THE DESIGN DRAWINGS. THE BOILERS SHALL BE INSTALLED IN THE APPROXIMATE LOCATION OF THE EXISTING HVAC-2 AS SHOWN ON THE DESIGN DRAWINGS. (ALTERNATE: IF THE EXISTING HVAC CONTRACTOR PROVIDES NEW BOILERS, THE HVAC CONTRACTOR SHALL REMOVE THE EXISTING BOILERS, PUMPS, AND ASSOCIATED DUCTWORK TO PREPARE FOR THE BOILER CHANGE OVER. THE EXISTING BOILER AND PUMPS WILL REMAIN ACTIVE THROUGH THE NEW BOILERS' CONSTRUCTION PHASE.)
5. FINAL BOILER CHANGE OVER: HVAC CONTRACTOR SHALL CHANGE OVER AND PUT INTO SERVICE THE NEWLY INSTALLED BOILERS, PUMPS, AND EQUIPMENT. HVAC CONTRACTOR SHALL COORDINATE THE TIMING OF THE CHANGEOVER WITH THE OPERATIONS AND MAINTENANCE DEPARTMENT. THE CHANGEOVER SHALL BE COMPLETED WITHIN 24 HOURS. THE CHANGEOVER AND, CHANGEOVER CANNOT HAPPEN WHEN TEMPERATURE PROJECTIONS ARE LOWER THAN 50 DEGREES FAHRENHEIT.
6. REMOVE EXISTING BOILER AND EQUIPMENT: ONCE THE CHANGEOVER IS FINAL AND THE NEW EQUIPMENT IS OPERATIONAL, HVAC CONTRACTOR IS TO REMOVE THE EXISTING BOILER, TEMPORARY FLUE, PUMPS, PIPING, EXPANSION TANK, AND ASSOCIATED DUCTWORK AND GAS PIPING AS SHOWN ON THE DESIGN DRAWINGS. HVAC CONTRACTOR SHALL REMOVE THE EXISTING HEAT EXCHANGER AND APPURTENANCES), PATCH TEMPORARY FLUE PIPING, AND REMOVE THE EXISTING GAS PIPING TO BE REPLACED BY NEW FLUES.
7. REMOVE FUEL TANK: HVAC CONTRACTOR SHALL REMOVE THE EXISTING FUEL OIL TANK AND RELATED PIPING MATERIAL FOR REMOVAL. HVAC CONTRACTOR SHALL NOTIFY D.E.C. THAT THE TANK WAS REMOVED.

AAD	AUTOMATIC AIR DAMPER
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
AHU	AIR HANDLING UNIT
AMP	AMPERAGE
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BMS	BUILDING MANAGEMENT SYSTEM
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CH	CABINET HEATER
CLG	CEILING
C	CONDENSATE
DB	DRYBULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL (SYSTEM)
DEG	DEGREE
DIA	DIAMETER
DN	DOWN
DP	DEWPOINT TEMPERATURE
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	EXHAUST GRILLE
ESP	EXTERNAL STATIC PRESSURE
EXH	EXHAUST
F	FAHRENHEIT
FD	FIRE DAMPER
FF	FINAL FILTER
FLR	FLOOR
FPM	FEET PER MINUTE
FSSTAT	FREEZESTAT
FT	FEET
FT HD	FEET OF HEAD
FT WG	FEET OF WATER GAUGE
FV	FACE VELOCITY
G	GAS
GAL	GALLON
GPM	GALLONS PER MINUTE
HD	HEAD
HP	HORSEPOWER
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MBH	1,000 BTU/HR
MCA	MINIMUM BRANCH CIRCUIT AMPACITY
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
PD	PRESSURE DROP
R	REMOVE
RA	RETURN AIR
RL	REFRIGERANT LIQUID
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
S	SATISFACTORY
SAT	SUPPLY AIR TEMPERATURE
SEN	SENSIBLE HEAT
SG	SPECIFIC GRAVITY
SP	STATIC PRESSURE
TAB	TESTING, ADJUSTING, BALANCE
TSTAT	THERMOSTAT
TYP	TYPICAL
VD	VOLUME DAMPER
WB	WETBULB
WG	WATER GAUGE
HP	HEAT PUMP
ΔT	TEMPERATURE DIFFERENCE

1. THE SCOPE OF REMOVAL SHOWN ON "REMOVALS" DRAWING IS DIAGRAMMATIC ONLY AND INDICATES THE INTENT OF THE WORK TO BE PERFORMED AND NOT THE COMPLETE SCOPE OF DEMOLITION AND/OR REMOVAL. OWNER SHALL BE RESPONSIBLE FOR THE CONTRACTOR TO REMOVE OR RELOCATE ANY RELATED MECHANICAL DEVICES/ITEMS EVEN IF NOT SPECIFICALLY INDICATED TO BE REMOVED ON THESE DRAWINGS IN ORDER TO ACCOMMODATE NEW WORK.
2. EQUIPMENT/ITEMS SHOWN CROSS HATCHED ON DRAWINGS ARE ITEMS TO BE REMOVED. ANY DEVICES/ITEMS REMOVED SHALL INCLUDE (BUT SHALL NOT BE LIMITED TO) THE REMOVAL OF ALL ASSOCIATED PIPING, CONTROLS, ETC. THAT ARE NOT OPERATED BY THE NEW LAW. OWNER SHALL BE RESPONSIBLE TO PERFORM ALL WORK REQUIRED TO INSURE CONTINUITY OF SERVICE TO EXISTING REMAINING EQUIPMENT. NO EXTRAS RELATING TO THE SCOPE OF WORK DESCRIBED WILL BE ALLOWED.
3. EQUIPMENT, PIPING, ETC. REQUIRED TO RECONNECT SHALL BE INSTALLED CONCEALED WITHIN THE SUSPENDED CEILINGS, PARTITIONS AND/OR WALLS, FLOORS. NO SURFACE MOUNTED OR EXPOSED EQUIPMENT, PIPING, ETC., SHALL BE PERMITTED, UNLESS SPECIFICALLY INDICATED.
4. ALL ITEMS TO BE REMOVED SHALL BE KEPT WITH THE OWNER PRIOR TO THE WORK. OWNER SHALL HAVE FIRST SALVAGE RIGHTS. ITEMS THE OWNER WISHES TO KEEP SHALL BE REMOVED WITH CARE AND STORED AS DIRECTED BY OWNER. ITEMS THE OWNER DOES NOT WANT SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY.

IT IS A VIOLATION OF THE LAW FOR ANY PERSON UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ARCHITECT/ENGINEER TO ALTER THIS DRAWING IN ANY WAY. ALTERATIONS MUST HAVE THE SEAL AFFIXED ALONG WITH A DESCRIPTION OF THE ALTERATION, THE SIGNATURE AND DATE. COPYRIGHT © 2019



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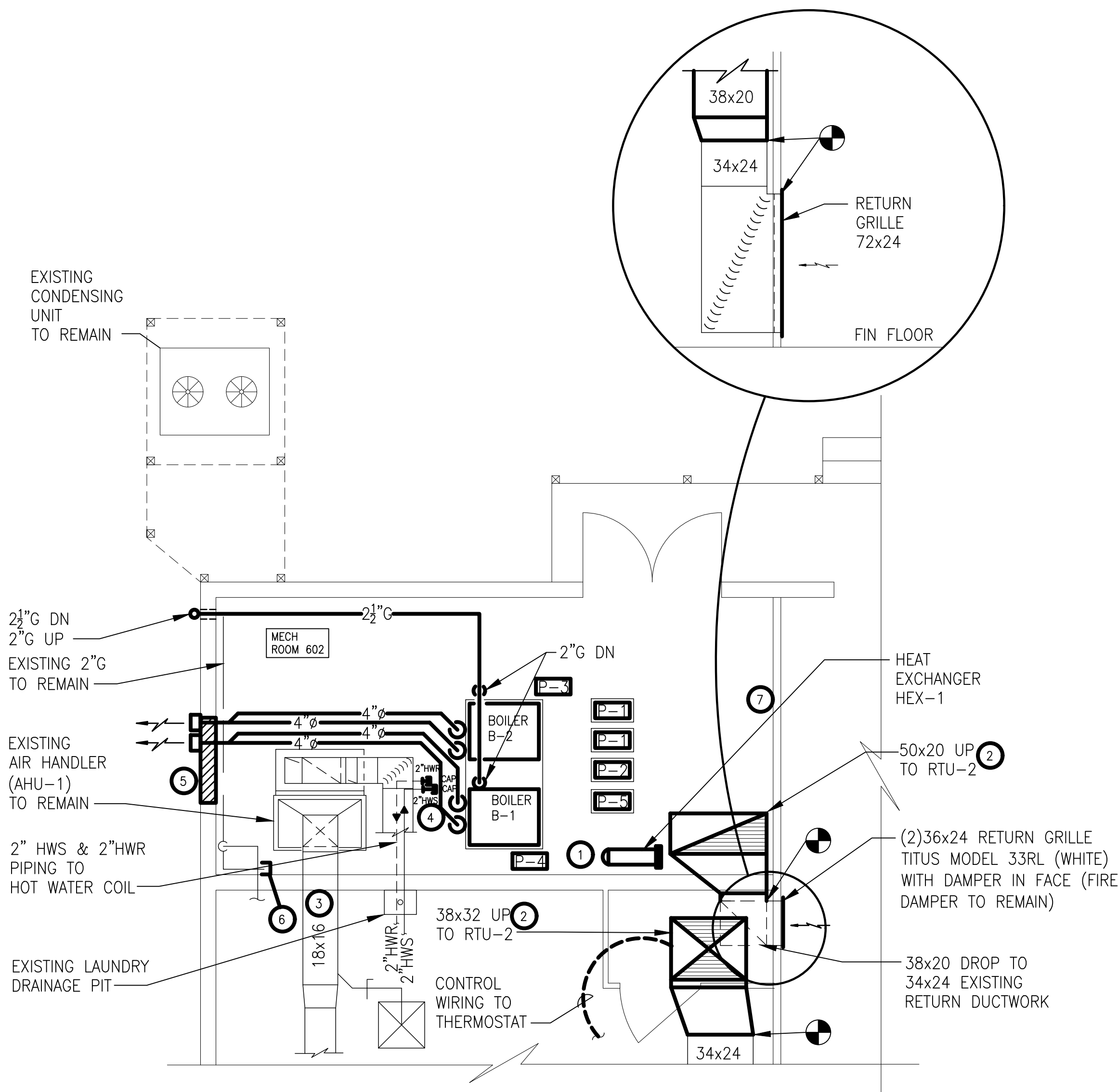
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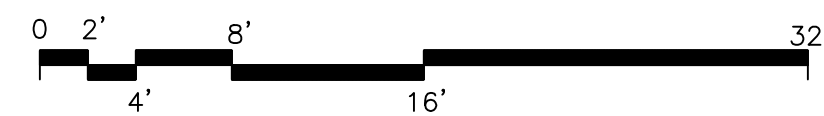
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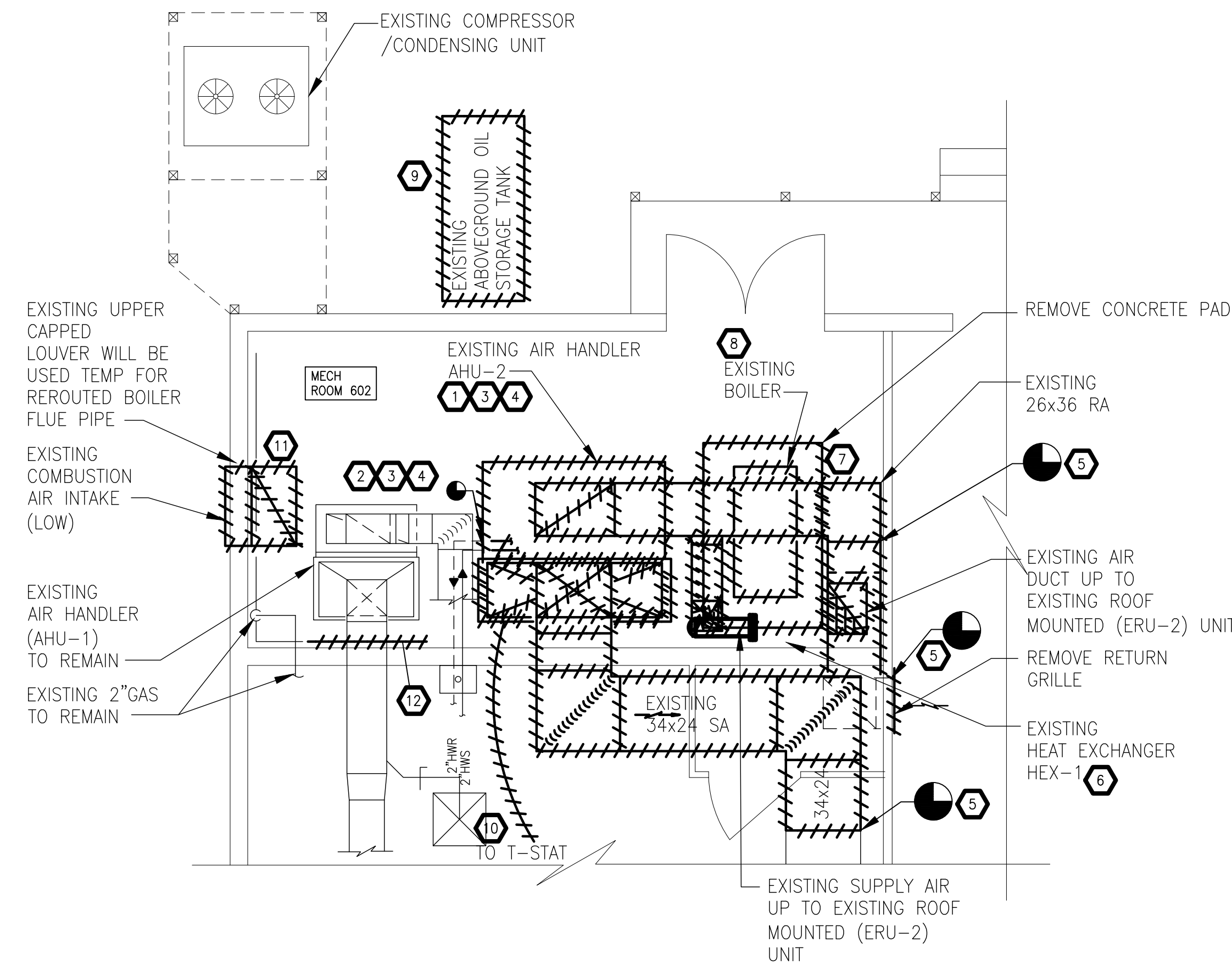


2 MECHANICAL ROOM 602 - NEW WORK
SCALE: 1/4"=1'-0"

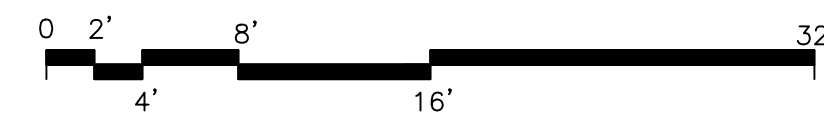


KEYED NOTES - NEW WORK:

- 1 CONTRACTOR TO PROVIDE NEW TACO MODEL #R08412TL4A1A202 HEAT EXCHANGER TUBE BUNDLE AND INCLUDE SHELL. VERIFY REPLACEMENT HEAT EXCHANGER TUBE BUNDLE PRIOR TO ORDERING. RECONNECT PIPING, SENSORS, CONTROL WIRING AND APPURTENANCES TO NEW HEAT EXCHANGER TUBE BUNDLE. FILL HEATING AND DOMESTIC HOT WATER SYSTEM. PURGE HEAT EXCHANGER AND RENDER OPERABLE. SET TEMPERATURE AS DIRECTED BY OWNER. (ALTERNATE #1)
- 2 MODIFY EXISTING OPENINGS AS REQUIRED FOR NEW DUCTWORK INSTALLATION
- 3 PROVIDE (4) DC16-4 LAMPS, 208V 3PH BY AMERICAN ULTRAVIOLET OR APPROVED EQUAL. MODIFY DUCTWORK AS REQUIRED FOR INSTALLATION. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
- 4 CAP 2" HWS AND 2"HWR AS SHOWN.
- 5 INFILL OPENING AS REQUIRED. MATCH EXISTING ADJACENT CONDITIONS INTERIOR AND EXTERIOR.
- 6 CAP 2" GAS LINE.
- 7 PROVIDE HAWS MODEL 7500 PORTABLE EYEWASH STATION. MOUNT PER MANUFACTURERS RECOMMENDATIONS.

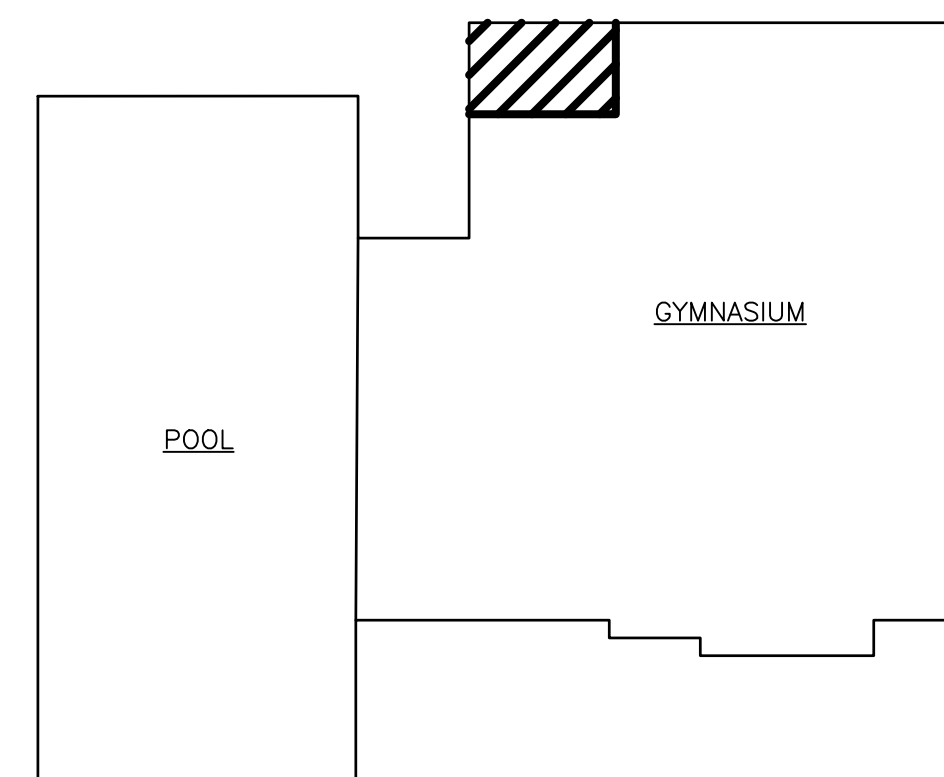


1 MECHANICAL ROOM 602 - DEMOLITION
SCALE: 1/4"=1'-0"



KEYED NOTES - DEMOLITION

- 1 CONTRACTOR SHALL REMOVE EXISTING AIR HANDLER (AHU-2) AND ALL APPURTENANCES (COMPLETE)
- 2 CONTRACTOR SHALL REMOVE EXISTING 2" HWS AND 2" HWR HYDRONIC PIPING, VALVES AND ALL ASSOCIATED APPURTENANCES (COMPLETE) TO REMOVAL POINTS SHOWN.
- 3 CONTRACTOR SHALL PERFORM A PRE- BALANCE ON AIR FLOW AND HYDRONIC FLOW TO HEATING COIL PRIOR TO DEMOLITION.
- 4 CONTRACTOR SHALL HIRE FACILITIES CONTROL CONTRACTOR TO REMOVE ALL AIR HANDLING CONTROLS, CONTROLS, WIRING, CONTROL VALVES AND SENSORS.
- 5 CONTRACTOR SHALL REMOVE EXISTING DUCTWORK TO REMOVAL POINTS SHOWN. PREPARE DUCTWORK FOR CONNECTION TO NEW DUCTWORK.
- 6 CONTRACTOR SHALL REMOVE EXSISTING PIPING, SENSORS, CONTROL WIRING AND ALL ASSOCIATED APPURTENANCES AS NECESSARY TO REPLACE EXISTING WATER TO WATER HEAT EXCHANGER TUBE BUNDLE. CLEAN AND FLUSH EXISTING HEAT EXCHANGER SHELL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- 7 REMOVE ERU-2 ON ROOF AND CURB AND APPURTENANCES. PREPARE FOR NEW WORK.
- 8 REMOVE EXISTING BOILER AND ASSOCIATED AND FLUE PIPING THRU ROOF. PATCH ROOF AS REQUIRED TO MAINTAIN WARRANTY.
- 9 REMOVE EXISTING ABOVE GROUND OIL STORAGE TANK AND FOS AND FOR TO BOILER. PATCH FLOOR. PATCH HOLES AS REQUIRED. PREPARE FOR NEW WORK. REMAINING OIL WILL BE TRANSFERED TO ANOTHER LOCATION PER OWNERS DIRECTION.
- 10 REMOVE EXISTING THERMOSTAT/SENSOR AND CONTROL WIRING.
- 11 REMOVE COMBUSTION AIR INTAKES AS SHOWN. PREPARE FOR NEW WORK
- 12 REMOVE PORTION OF 2" GAS LINE TO BOILER. PREPARE FOR NEW WORK



KEY-PLAN
SCALE: NONE



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STAMP



**GREEN CHIMNEYS
CHILDREN SERVICES
HVAC UPGRADE**

400 Doansburg Road, Brewster, N.Y.

FILE PATH: -N:\1 - PROJECT DIRECTORIES\1- E & R Projects\50-00-Green Chimneys Farm & Wildlife\50-19-01 Green Chimneys Pool & Gym HVAC Upgrades\50-19-01.M100.dwg

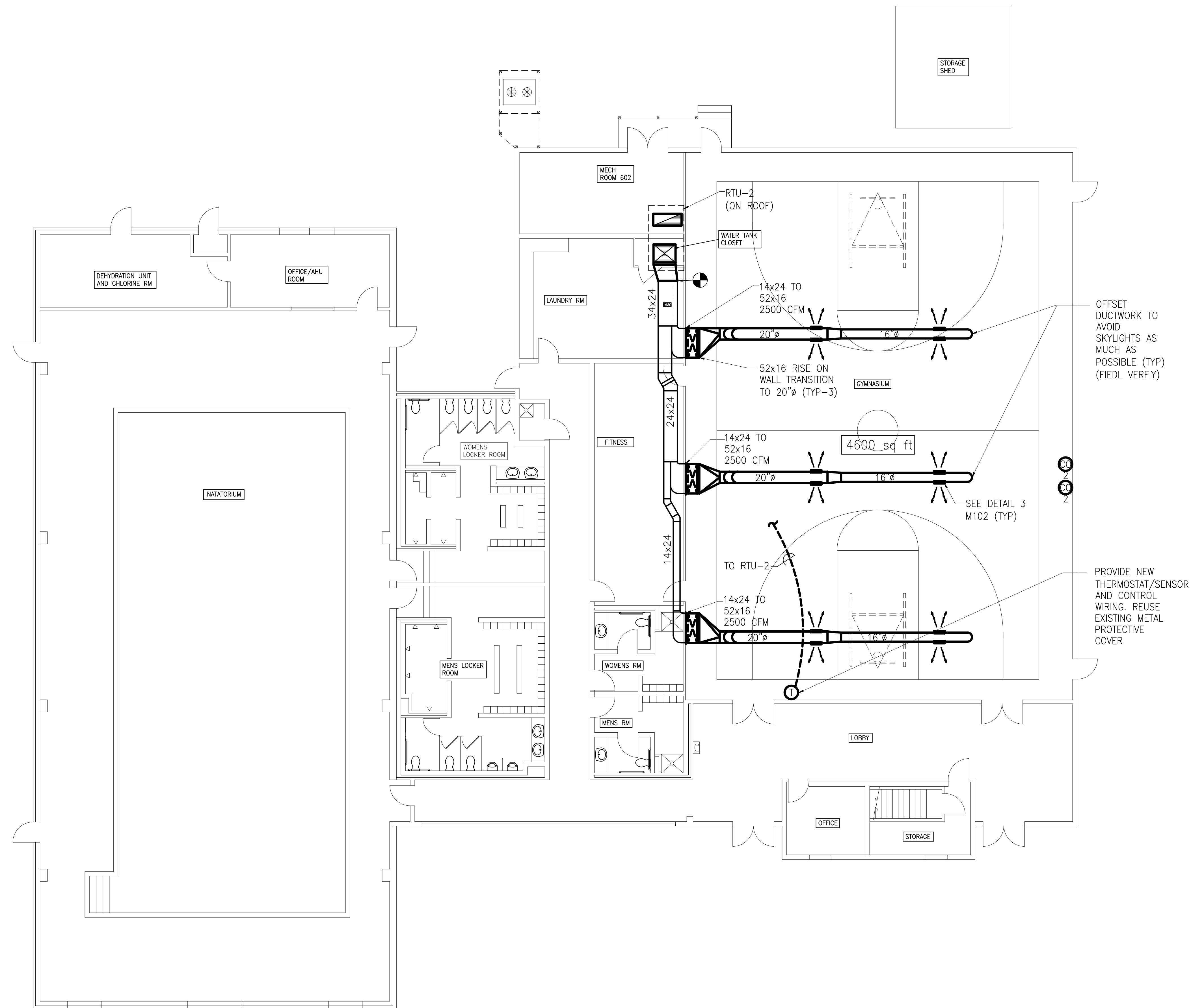
EMR PROJECT NO. 50-19-01

REVISION	DATE	BY
DATE	12.23.2020	
DRAWN BY	JMJ	
CHECKED BY	JJE	
SHEET SIZE	30x42	
SCALE	AS NOTED	

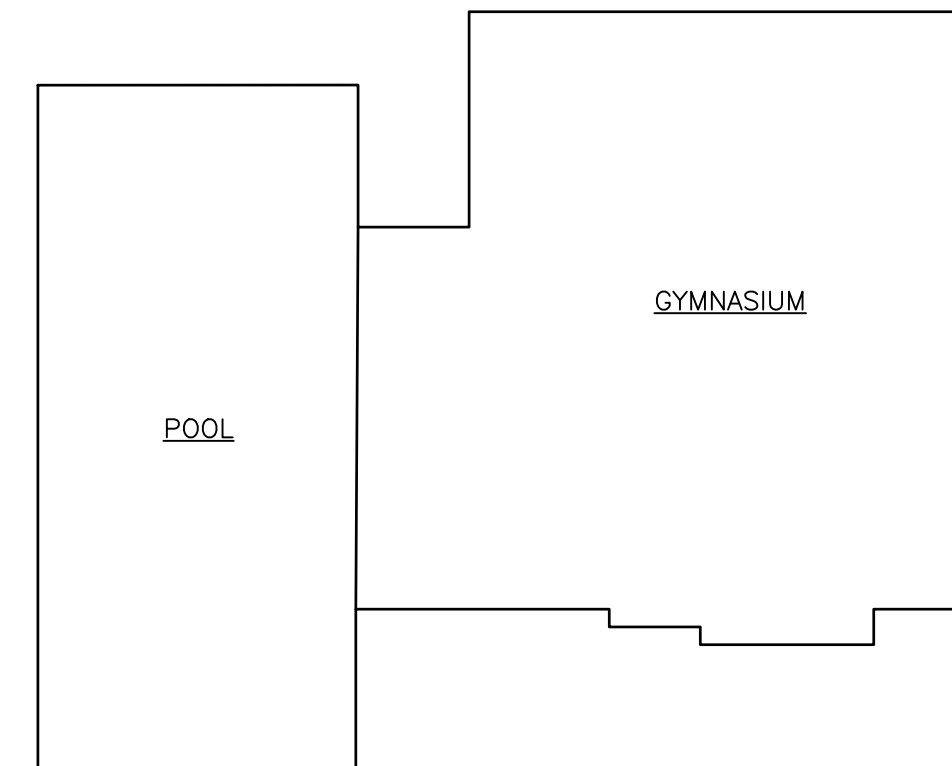
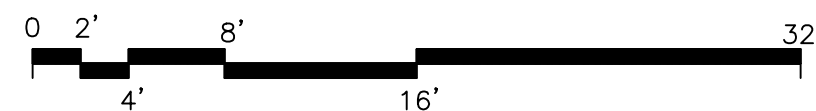
SHEET TITLE
**MECHANCIAL PLANS
DEMOLITION AND
NEW WORK**

SHEET NO.

M-100



1 OVERALL FLOOR PLAN GYMNASIUM / NATATORIUM - NEW WORK
SCALE: 1/8"=1'-0"



KEY-PLAN
SCALE: NONE



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ENGINEER:



Eisenbach & Rohnke Engineering, P.C.
200 Corporate Center - Union, NY 10987
Ph: 845-738-1818 Fax: 845-738-1865
www.e-r-engineering.com

CONSULTANT(S):

STAMP



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CHILDREN SERVICES
HVAC UPGRADE

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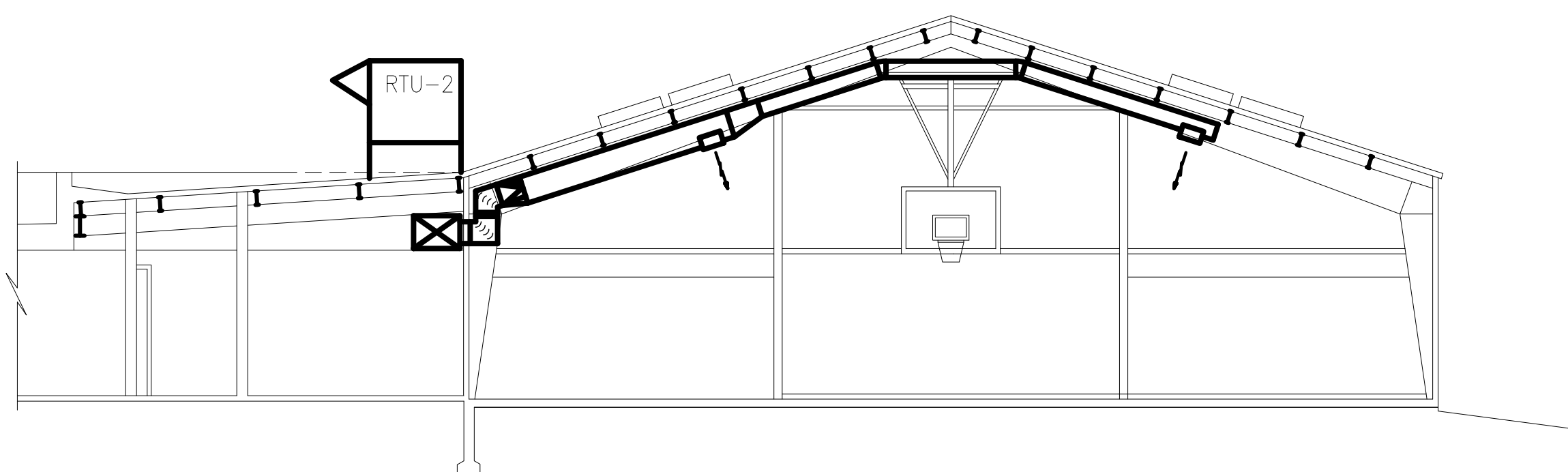
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OVERALL FLOOR PLAN
GYMNASIUM /
NATATORIUM - NEW
WORK

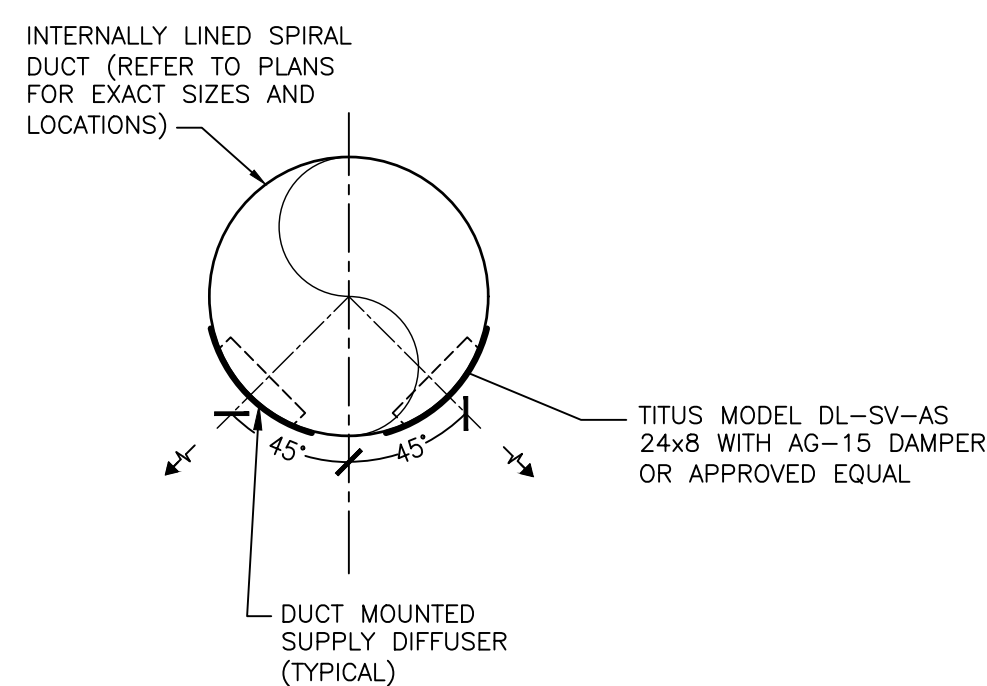
SHEET NO.

M-101

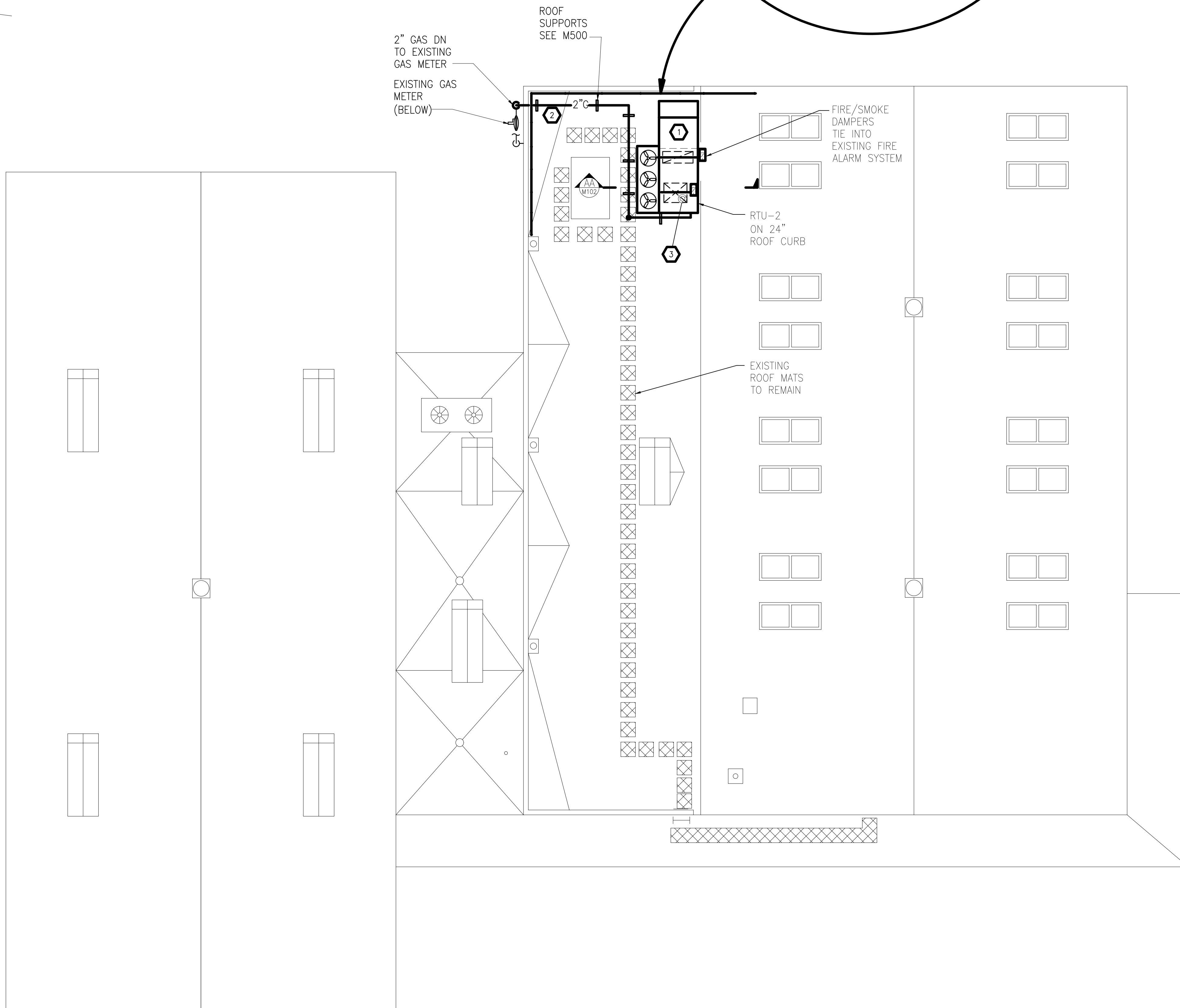
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2 SECTION A-A
SCALE: 1/8"=1'-0"



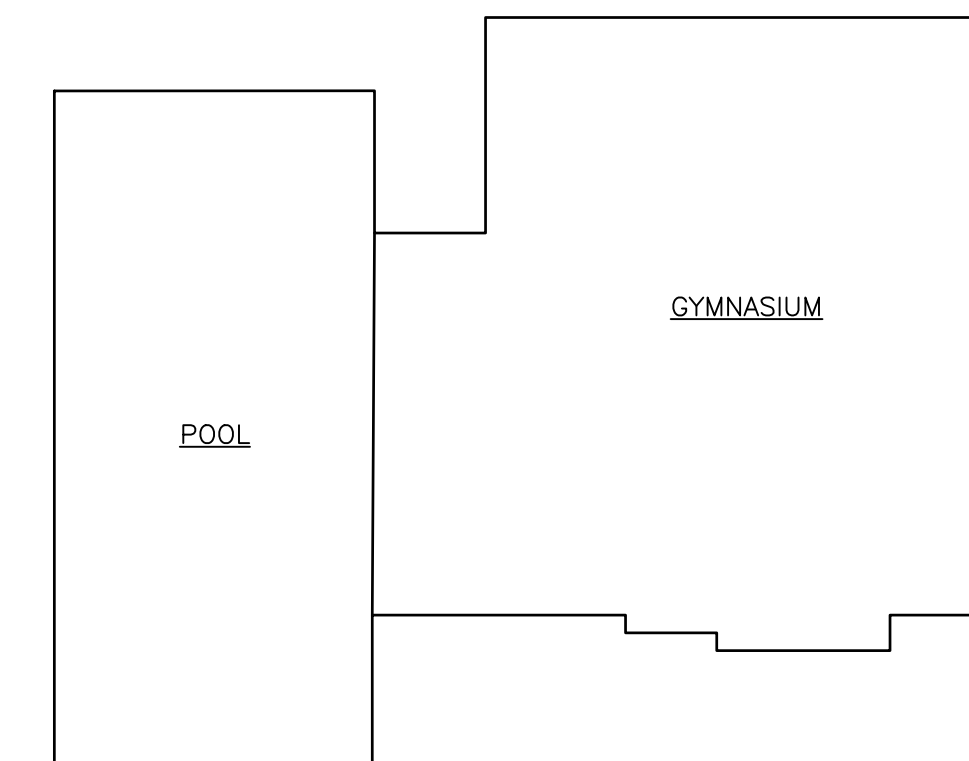
3 TYPICAL DUCT MOUNTED
DIFFUSER MOUNTING DETAIL
SCALE: NONE



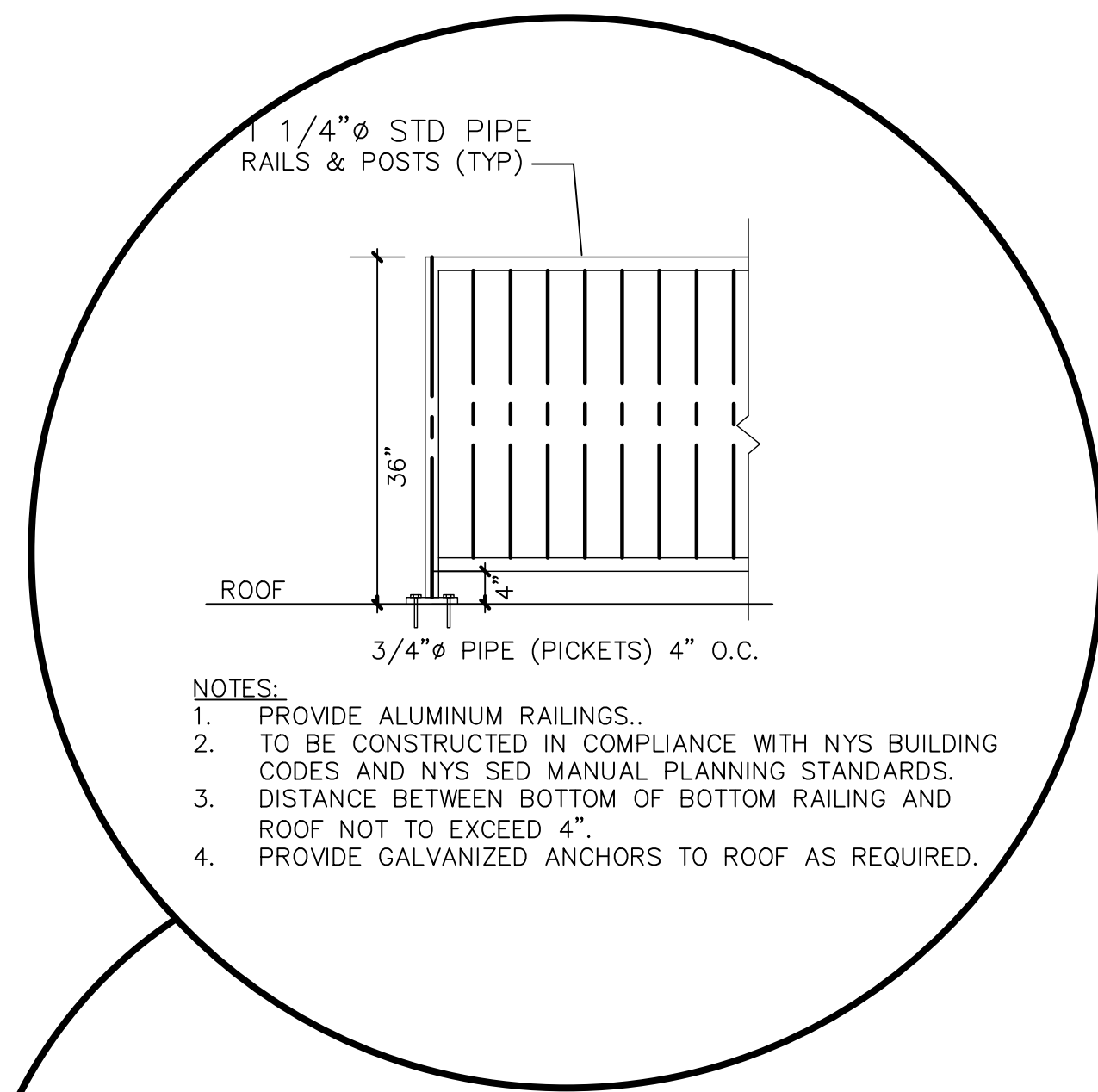
1 OVERALL ROOF PLAN GYMNASIUM / NATATORIUM - NEW WORK
SCALE: 1/8"=1'-0"



- KEYED NOTES - NEW WORK
- 1 REMOVE EXISTING ERU-2 AND ROOF CURB AND PREPARE FOR NEW WORK. PROVIDE NEW ROOF TOP UNIT WITH 24" HIGH INSULATED ROOF CURB. SEE M500 FOR ADDITIONAL INFORMATION. MODIFY EXISTING ROOF OPENINGS AS REQUIRED FOR NEW INSTALLATION.
 - 2 PAINT NEW GAS PIPING YELLOW.
 - 3 PATCH FLUE OPENING TO MAINTAIN ROOF WARRANTY.



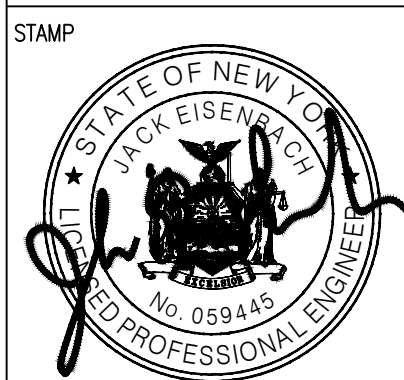
KEY-PLAN
SCALE: NONE



- NOTES:
1. PROVIDE ALUMINUM RAILINGS.
 2. TO BE CONSTRUCTED IN COMPLIANCE WITH NYS BUILDING CODES AND NYS SED MANUAL PLANNING STANDARDS.
 3. DISTANCE BETWEEN BOTTOM OF BOTTOM RAILING AND ROOF NOT TO EXCEED 4".
 4. PROVIDE GALVANIZED ANCHORS TO ROOF AS REQUIRED.

I, E. A. WILKINSON, OF THE CITY OF NEW YORK, COUNTY OF ALBANY, AM A LICENSED PROFESSIONAL ARCHITECT, AND I HEREBY CERTIFY THAT I AM THE ARCHITECT OF RECORD FOR THE PROJECT SHOWN ON THESE PLANS, AND THAT I AM NOT PROVIDING ANY OTHER PROFESSIONAL SERVICES TO THE PROJECT.

ENGINEER:
Eisenbach & Rohrer Engineering, P.C.
2001 Greenway Street - Albany, NY 12242
Ph: 518-735-1818 Fax: 518-735-1865
www.eisenbach.com

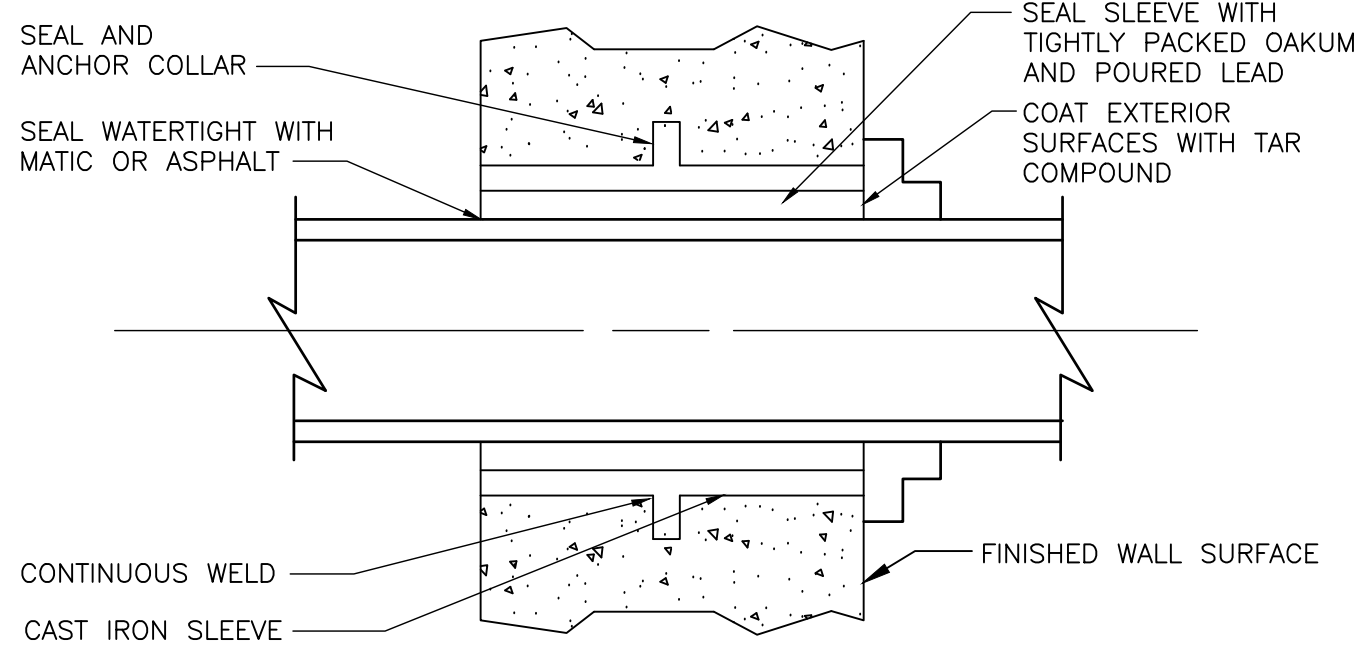


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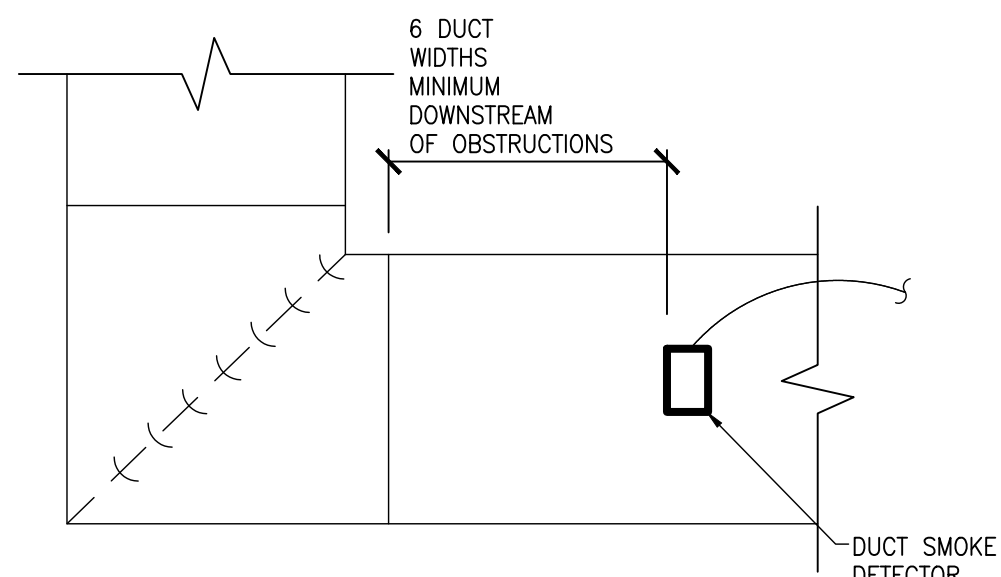
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SCALE	AS NOTED	

OVERALL ROOF PLAN
GYNASIUM /
NATATORIUM-
NEW WORK

SHEET NO.
M-102

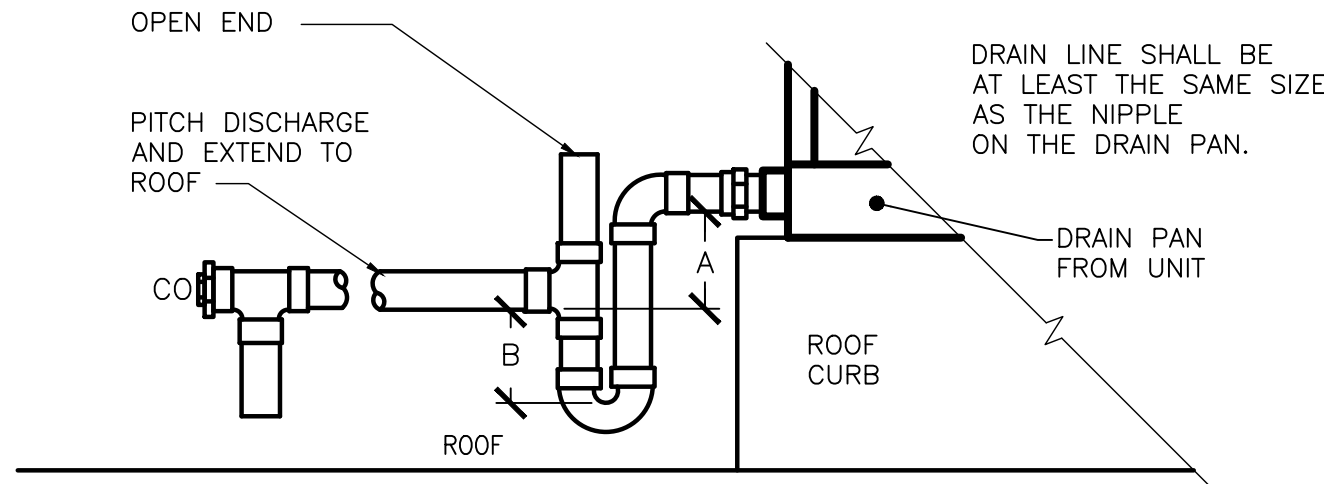


NOTE: PIPE SLEEVE FOR EXTERIOR WALL ABOVE GRADE
1 EXTERIOR WALL PIPE PENETRATION DETAIL
SCALE: NONE



- NOTES:
1. DETECTORS SHALL BE FURNISHED/WIRED BY ELECTRICAL CONTRACTOR AND INSTALLED BY HVAC CONTRACTOR.

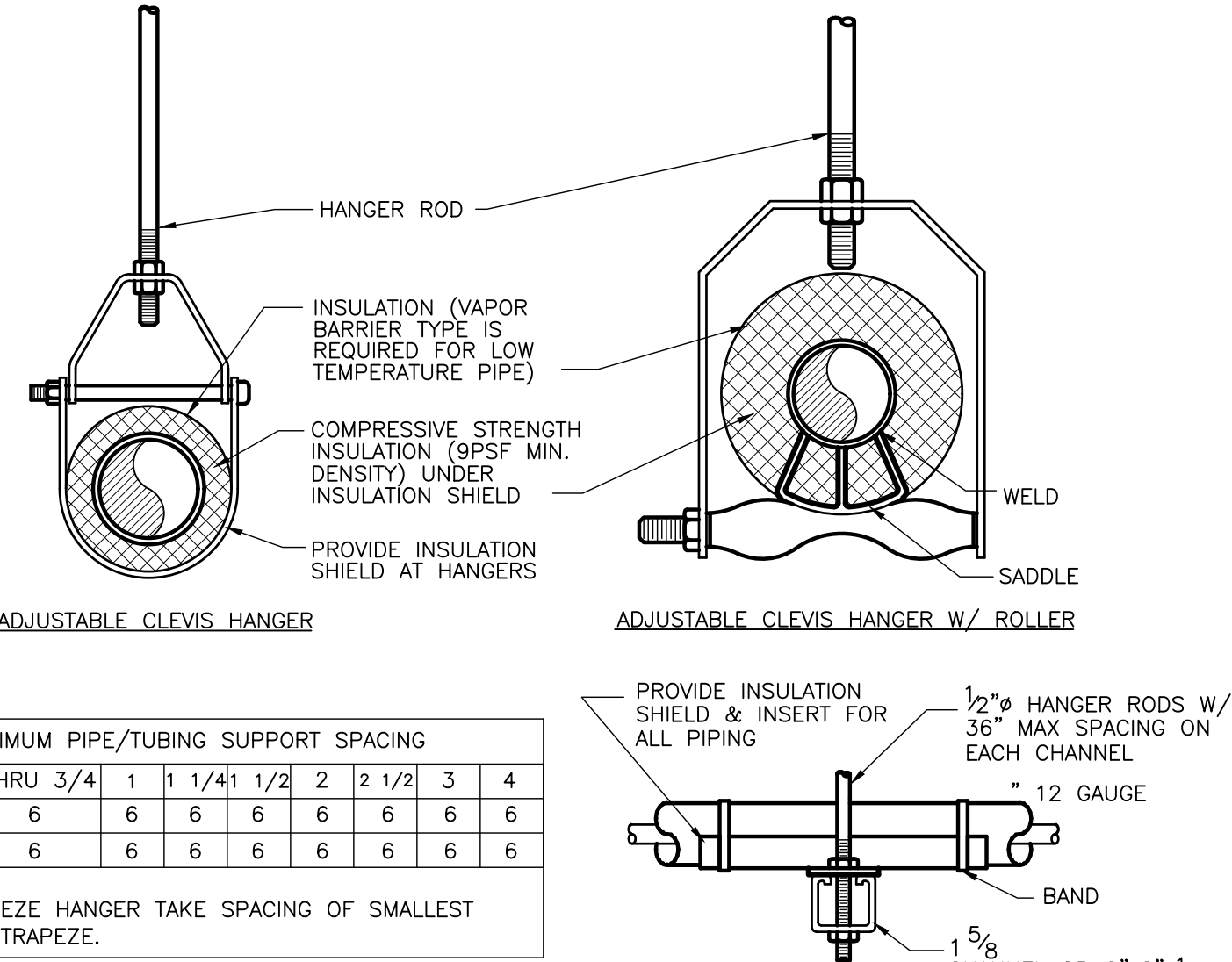
2 DUCTWORK SMOKE DETECTOR INSTALLATION
SCALE: NONE



UNIT TYPE	A	B
DRAW THRU UNITS	1" PLUS X	A/2
BLOW THRU UNITS	1/2" MIN	1/2" PLUS Y

X = MAX. FAN INLET PRESSURE (IN. W.C.)
Y = FAN OUTLET PRESSURE (IN. W.C.)

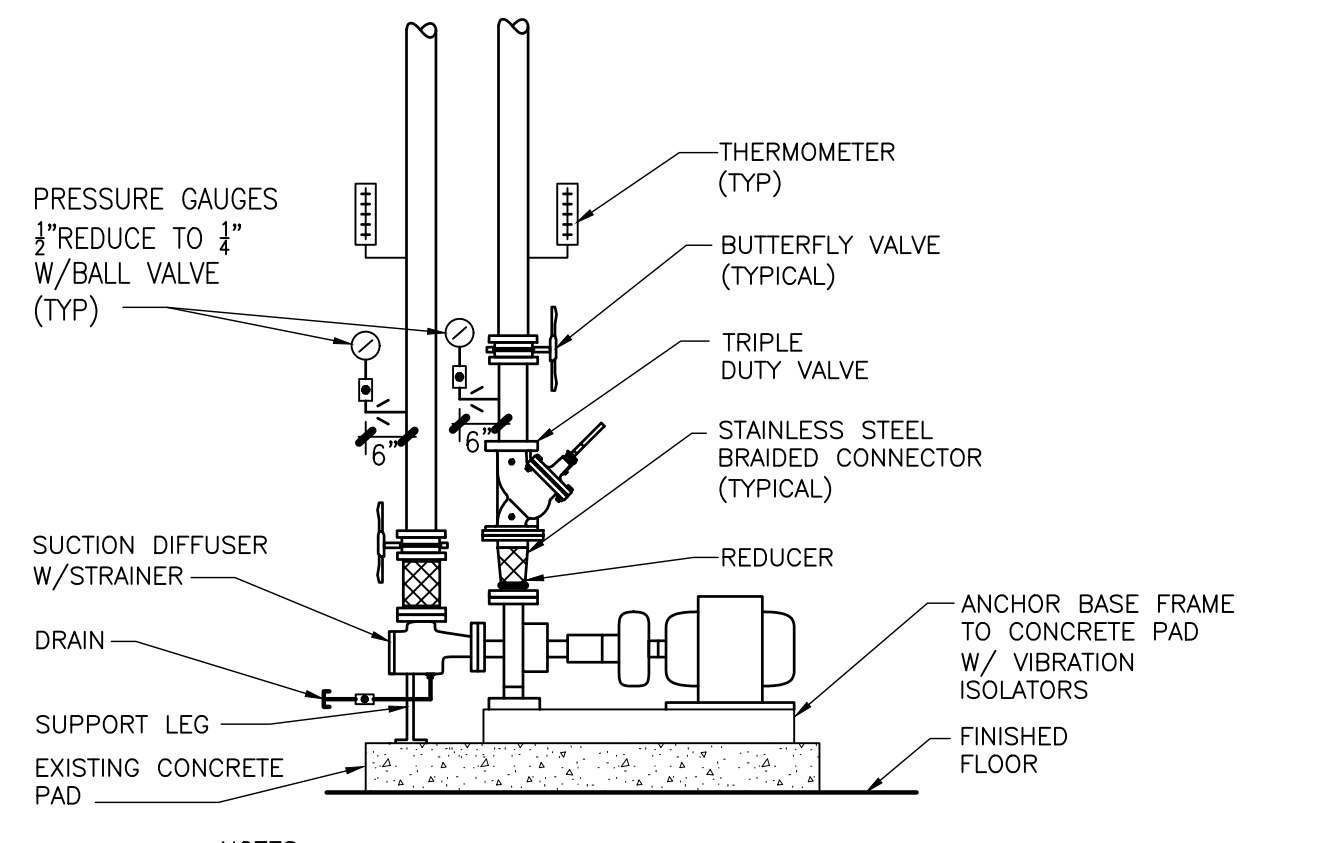
3 CONDENSATE DRAIN TRAP DETAIL
SCALE: NONE



MAXIMUM PIPE/TUBING SUPPORT SPACING	SIZE IN.	THRU 3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
PIPE FT.	6	6	6	6	6	6	6	6	6
TUBING FT.	6	6	6	6	6	6	6	6	6

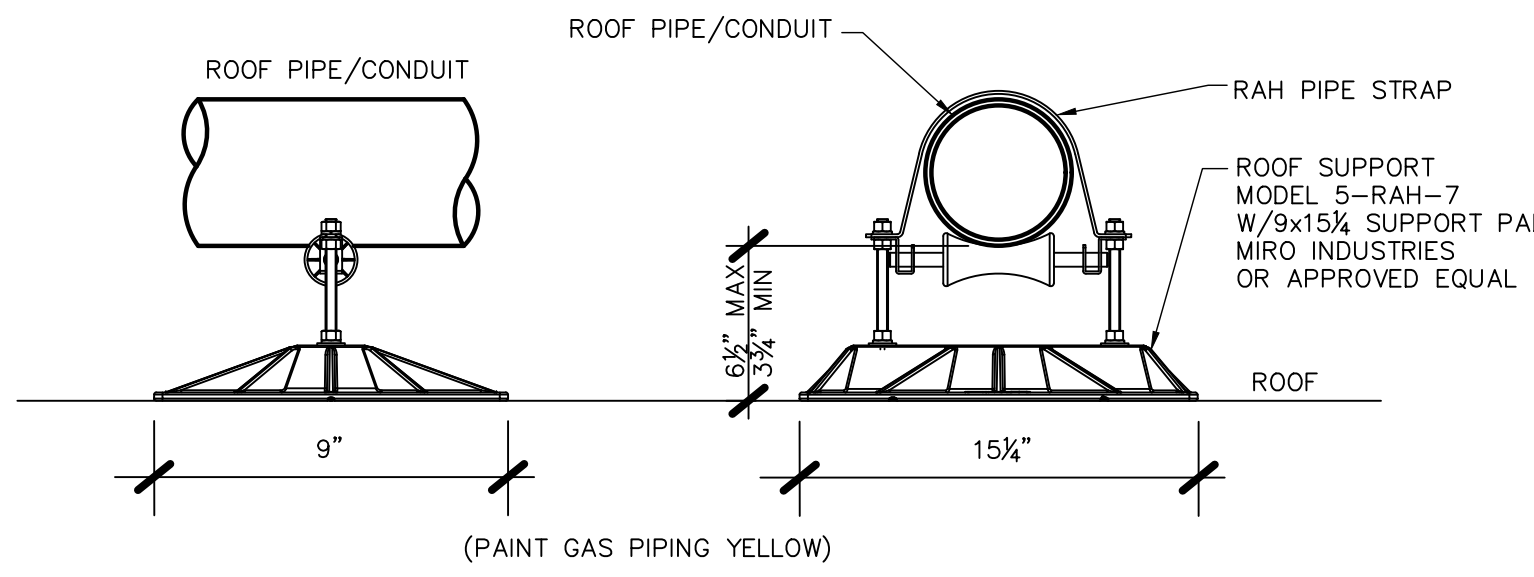
NOTE:
1. FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.

4 PIPE SUPPORT DETAIL
SCALE: NONE



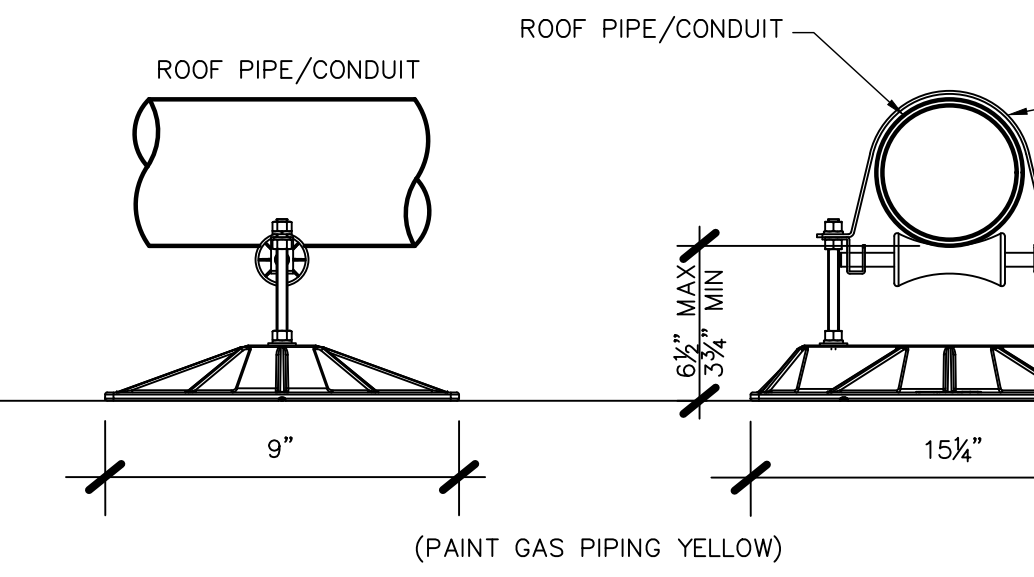
- NOTES:
1. SHUTOFF VALVES 2-1/2" AND SMALLER SHALL BE BALL VALVES.
 2. SHUTOFF VALVES 3" AND LARGER SHALL BE BUTTERFLY VALVES.
 3. SUPPORT PIPING INDEPENDENTLY OF PUMP AND SUCTION DIFFUSER.
 4. PROVIDE 4" CONCRETE PAD SEE DETAIL M-500

7 BASE MOUNTED PUMP DETAIL
SCALE: NONE



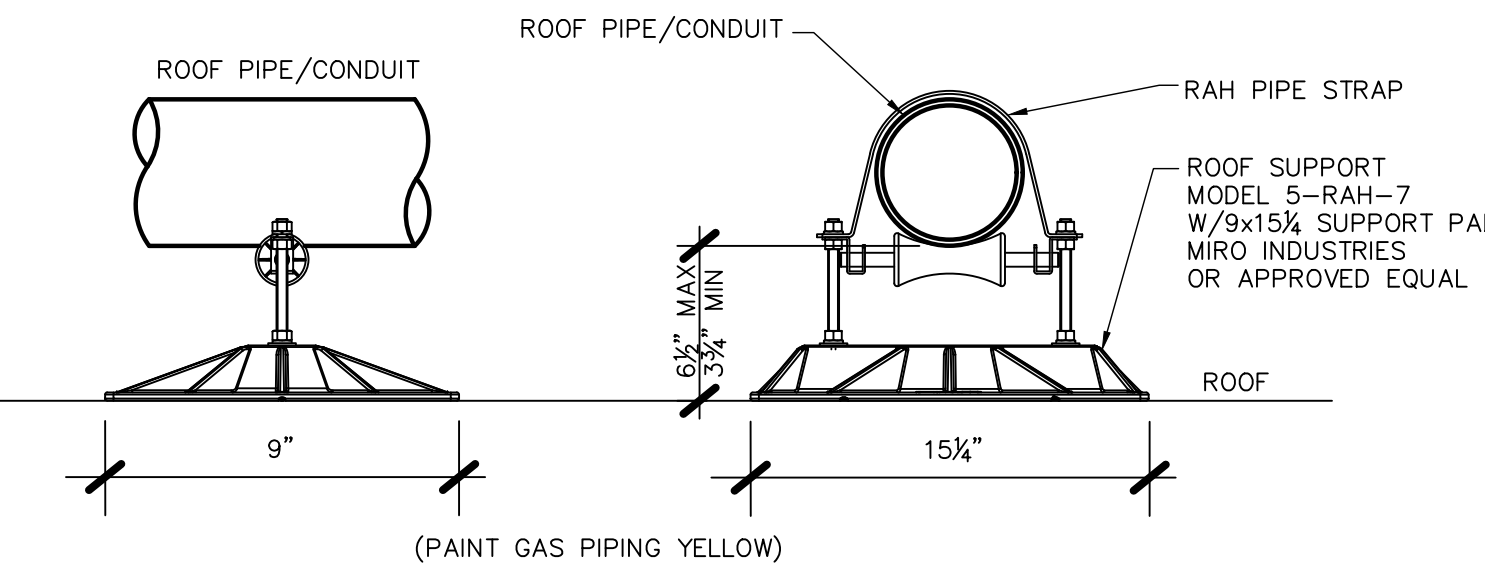
NOTE: MANUFACTURERS RECOMMENDED SPACING IS NOT TO EXCEED 10'-0" CENTERS.

6 ROOF SUPPORT FOR GAS PIPE (TYP)
SCALE: NONE



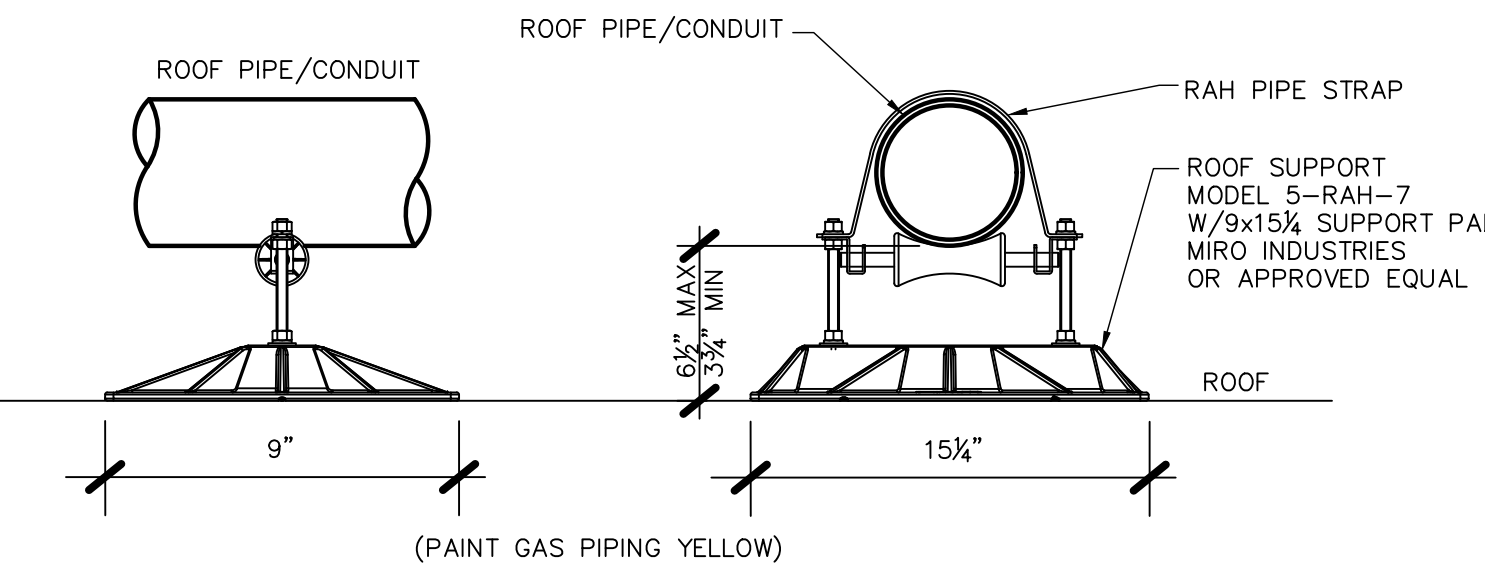
NOTE: GAS PIPING CONNECTION TO EQUIPMENT PER MANUFACTURERS RECOMMENDATIONS

5 GAS PIPE CONNECTION DETAIL
SCALE: NONE



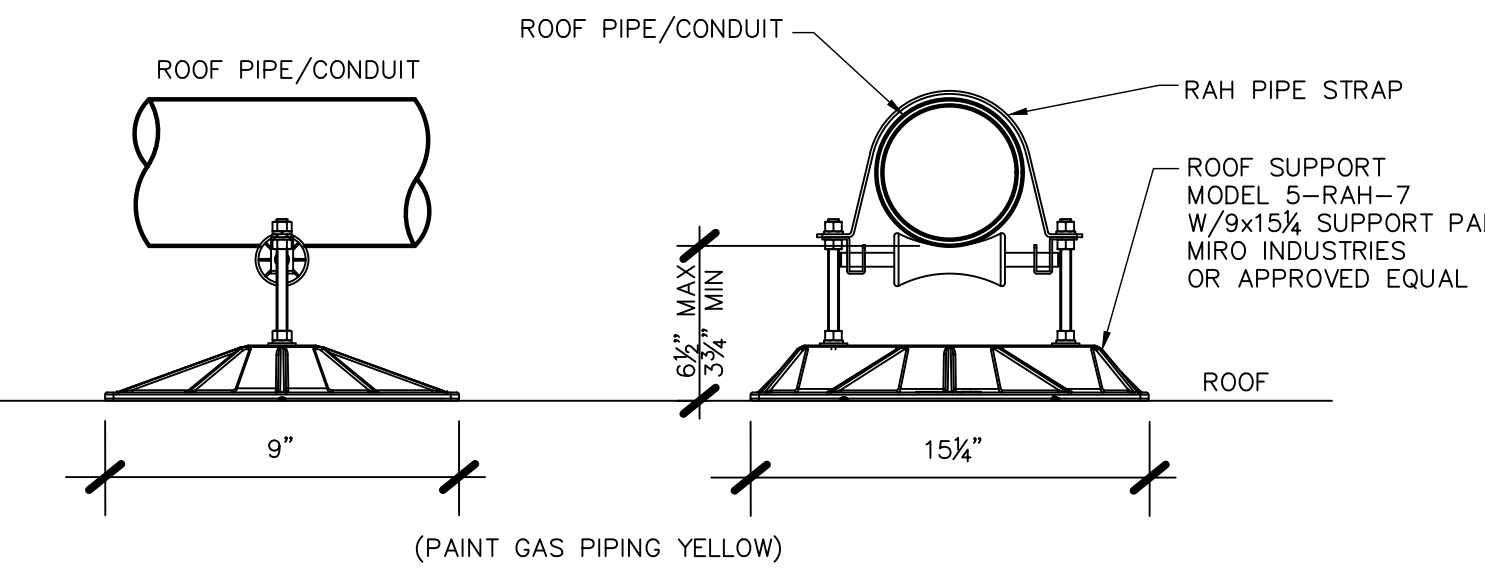
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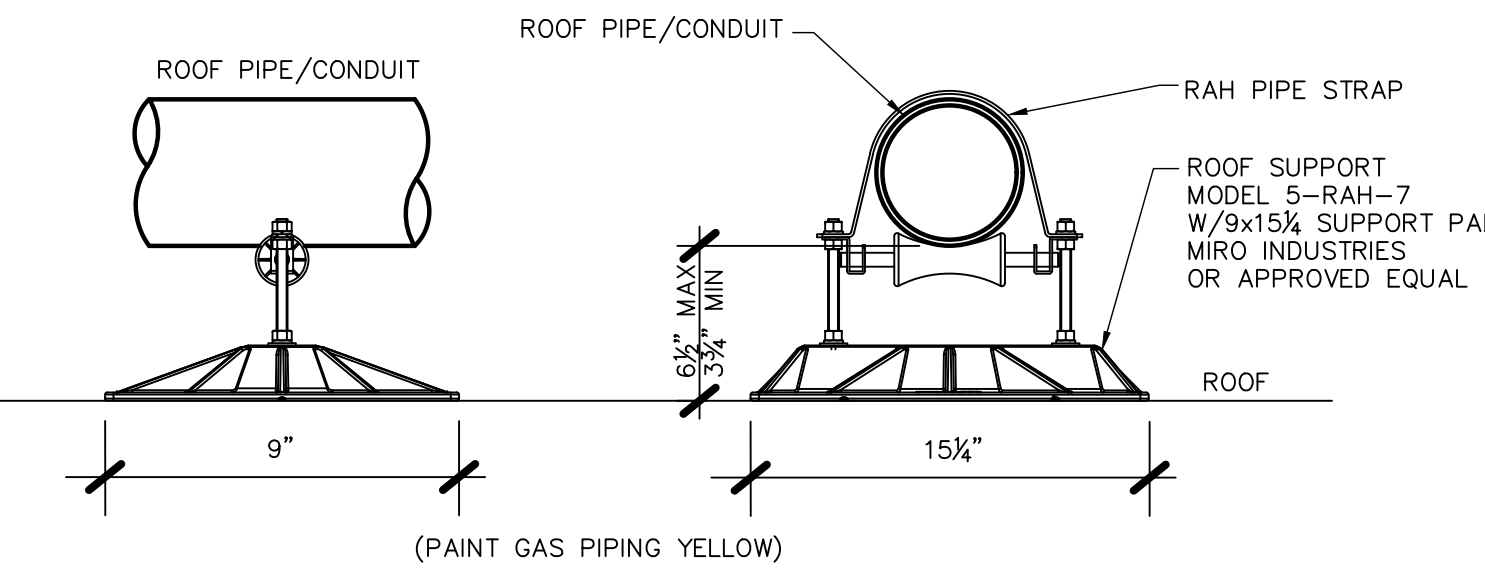
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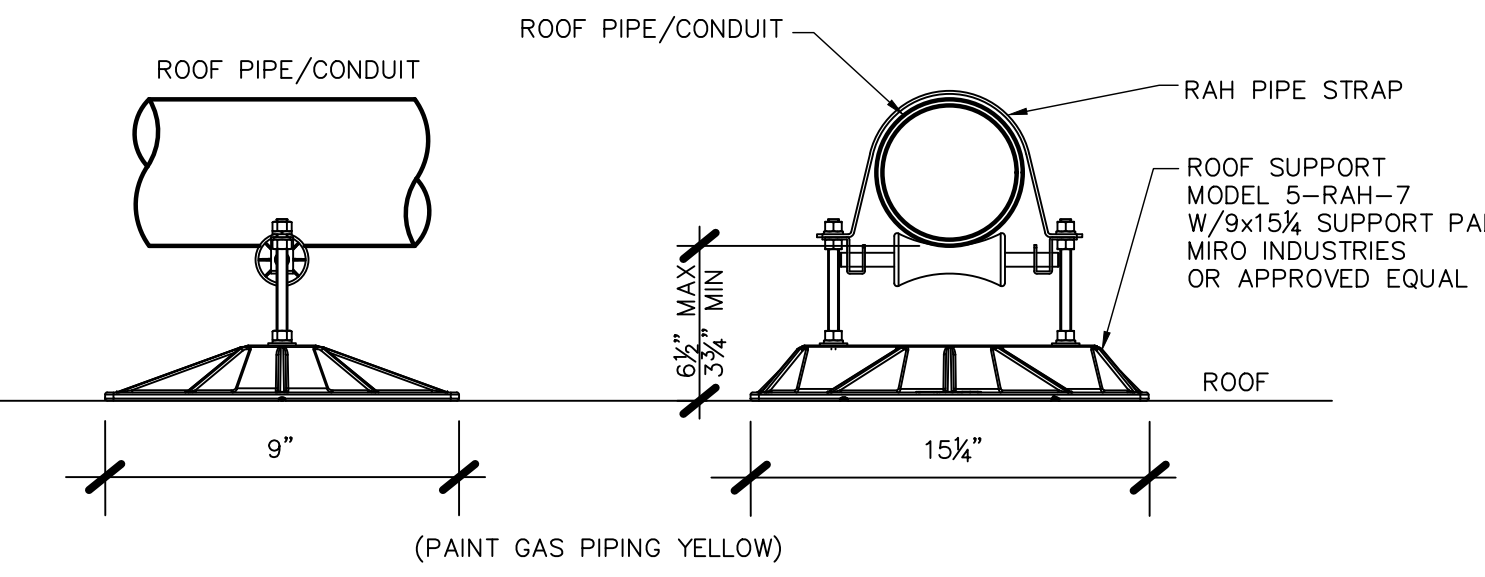
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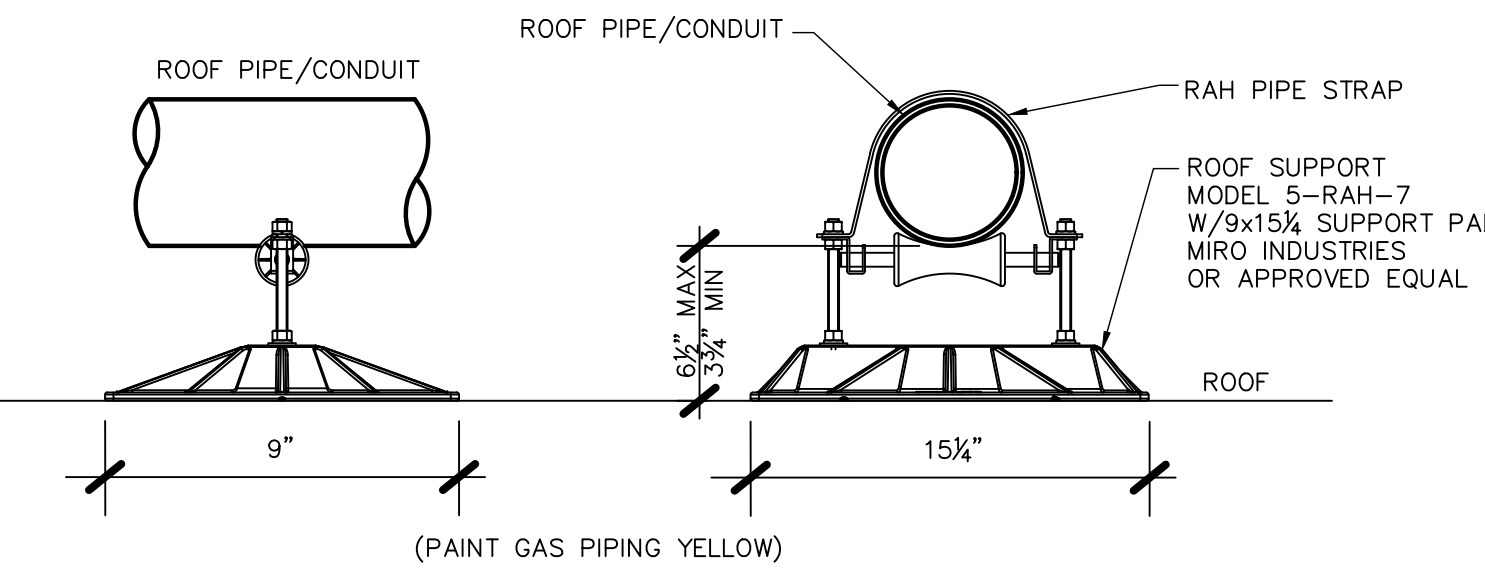
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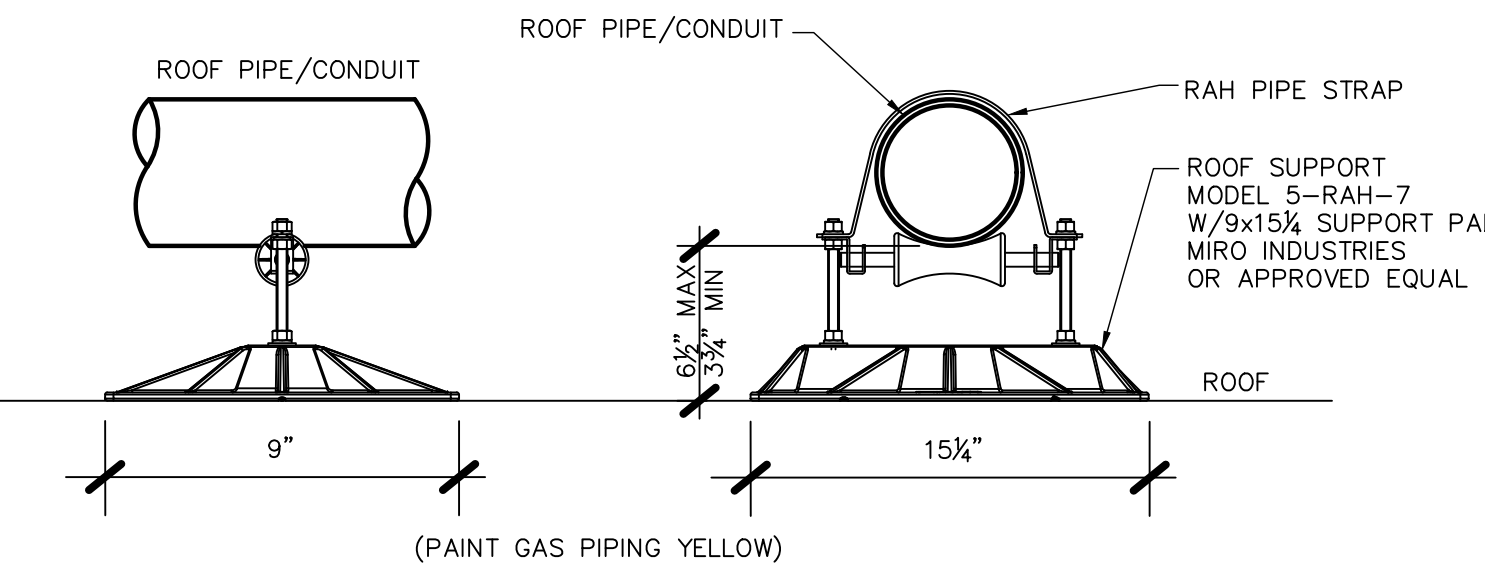
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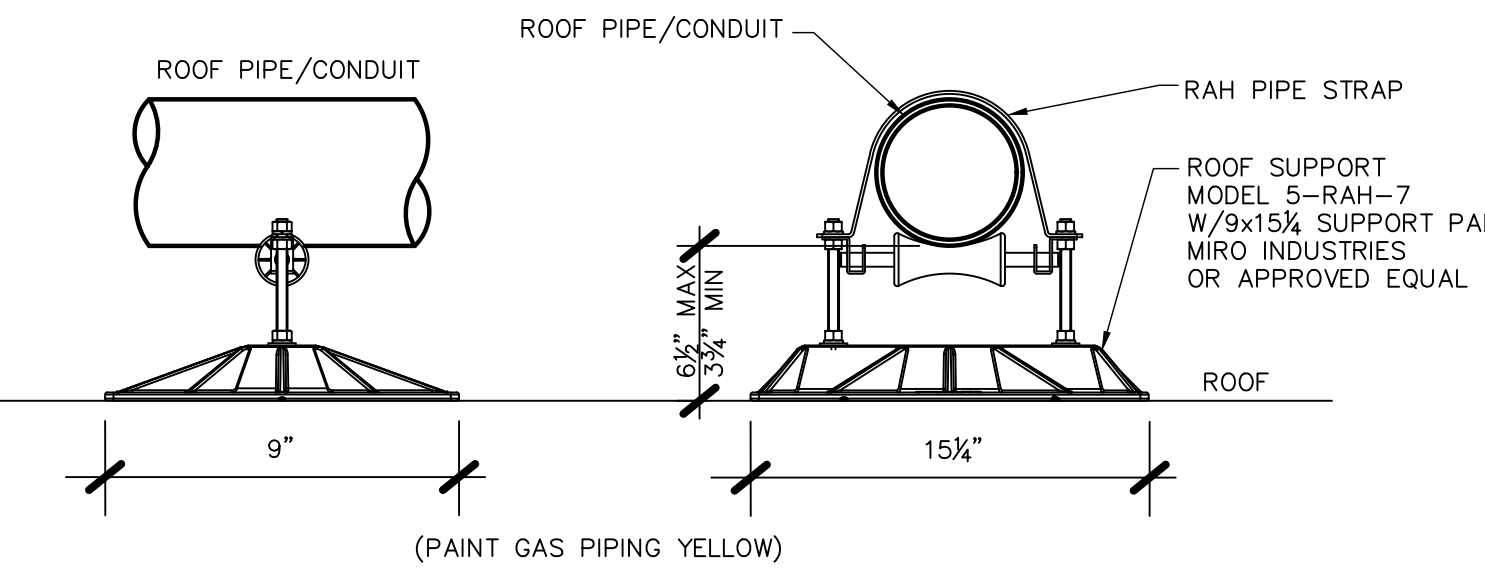
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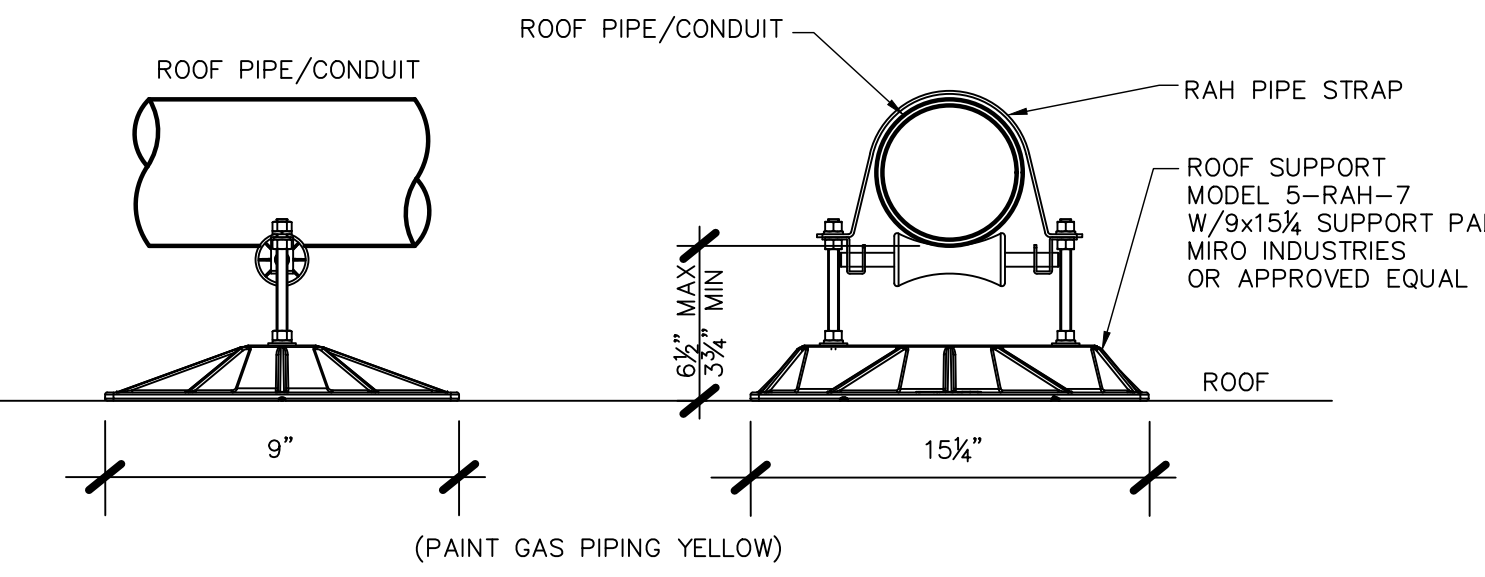
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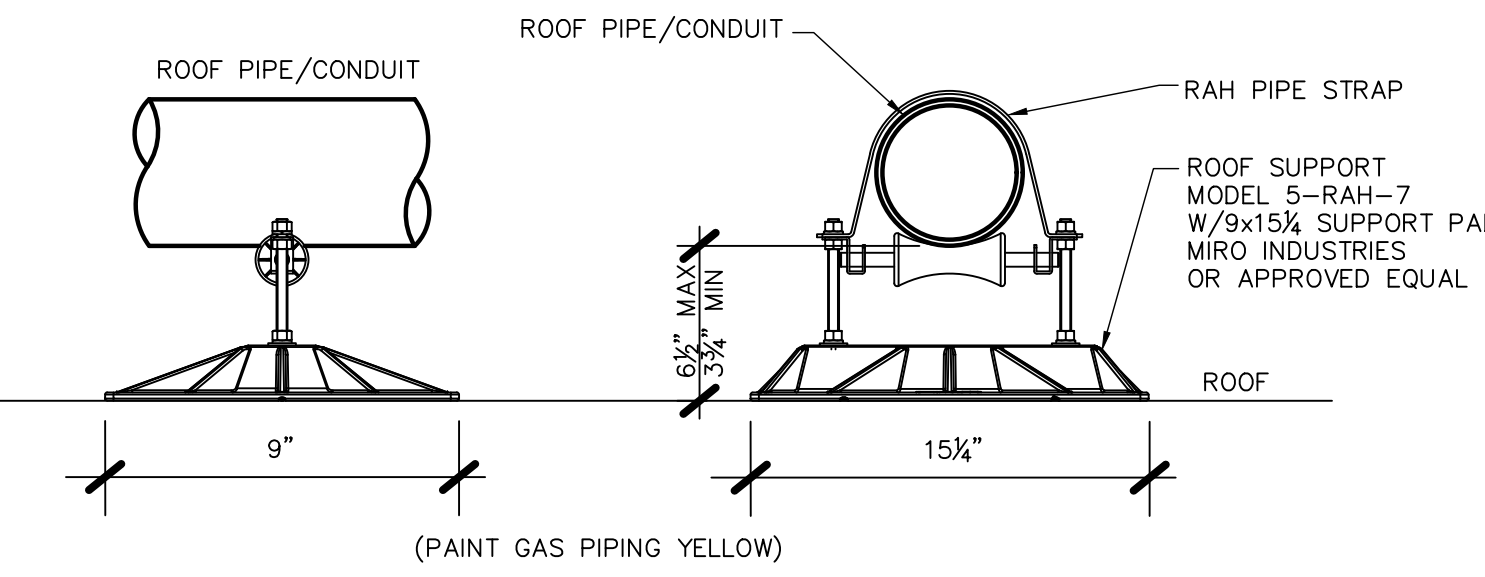
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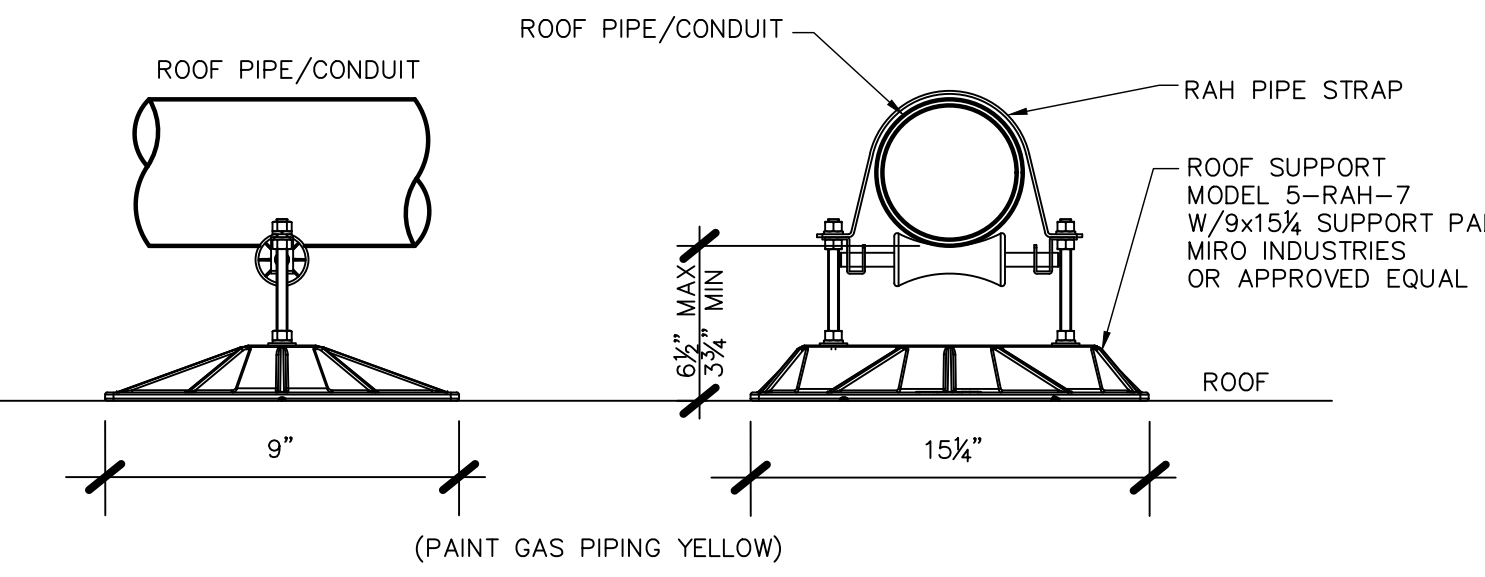
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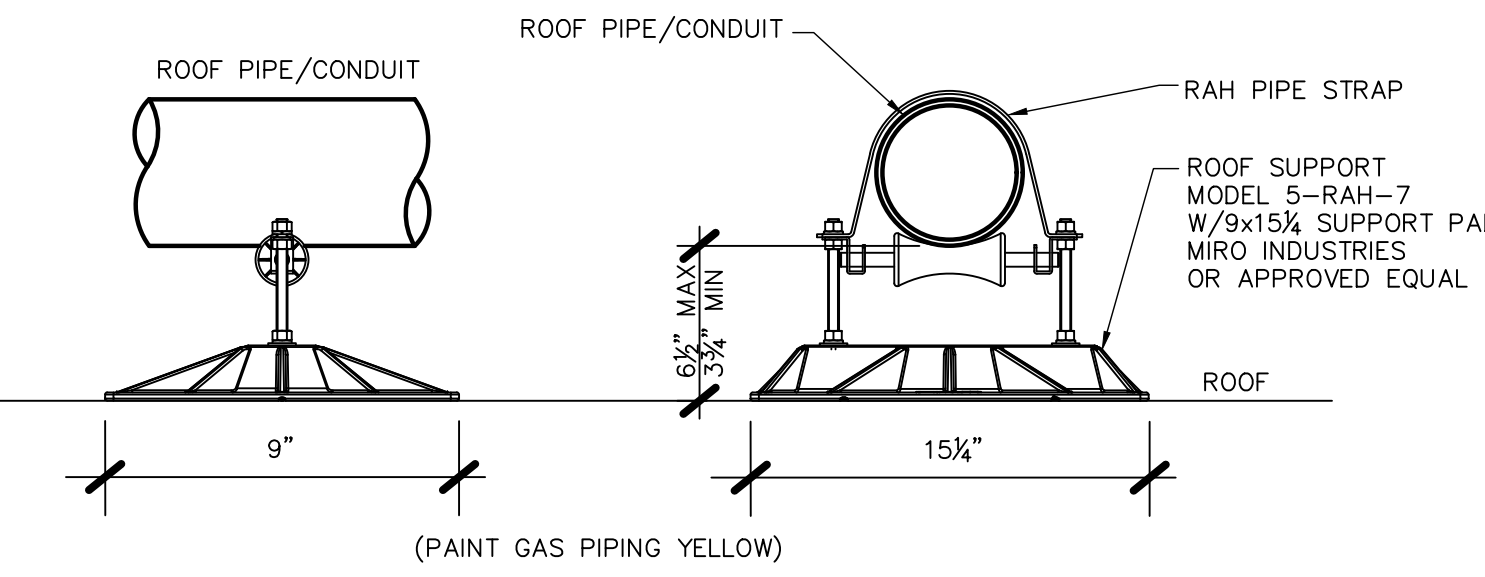
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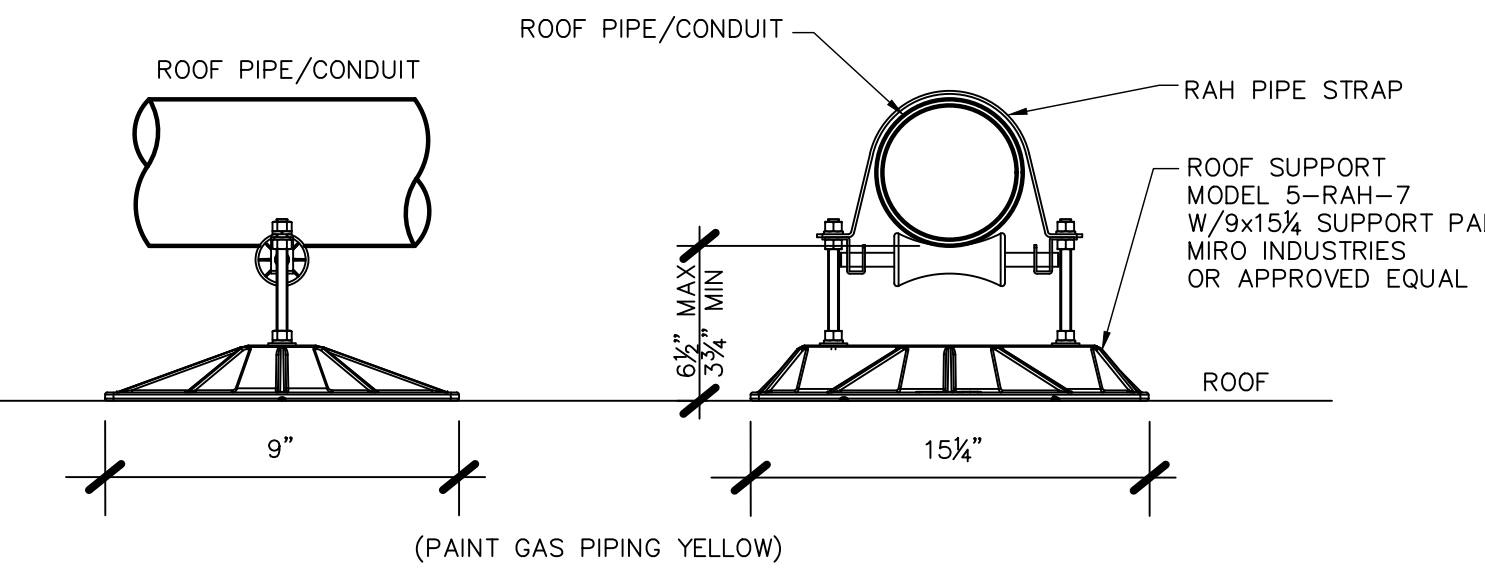
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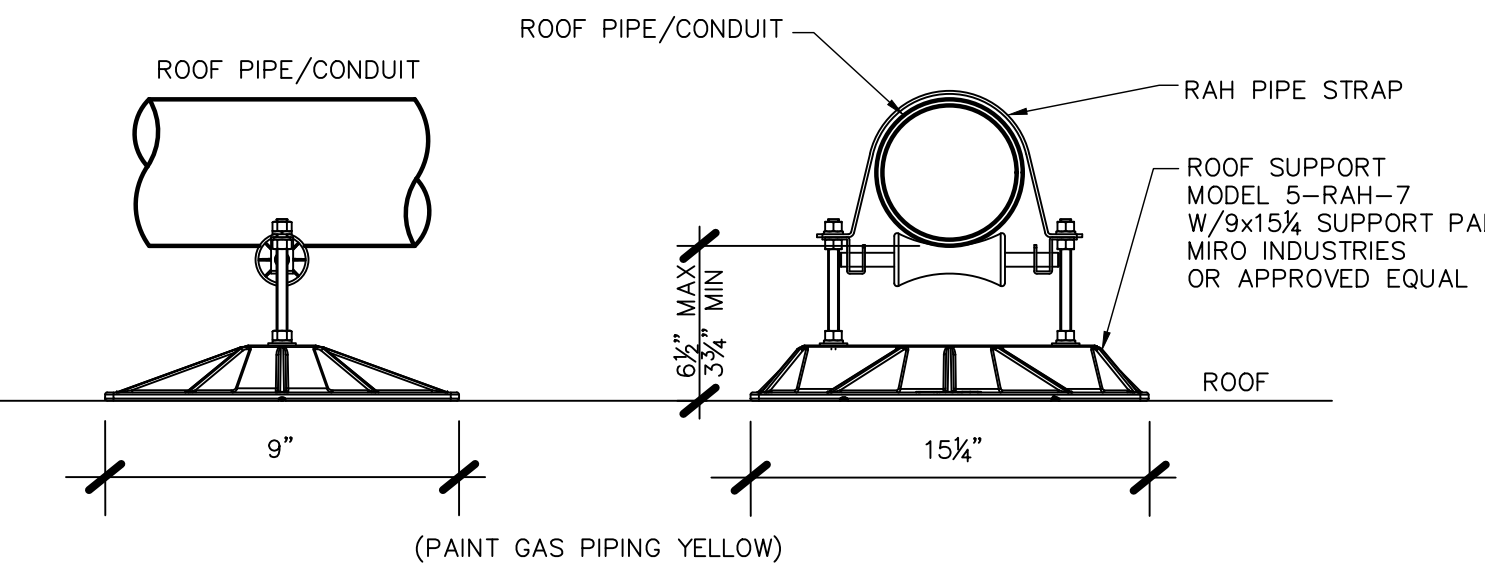
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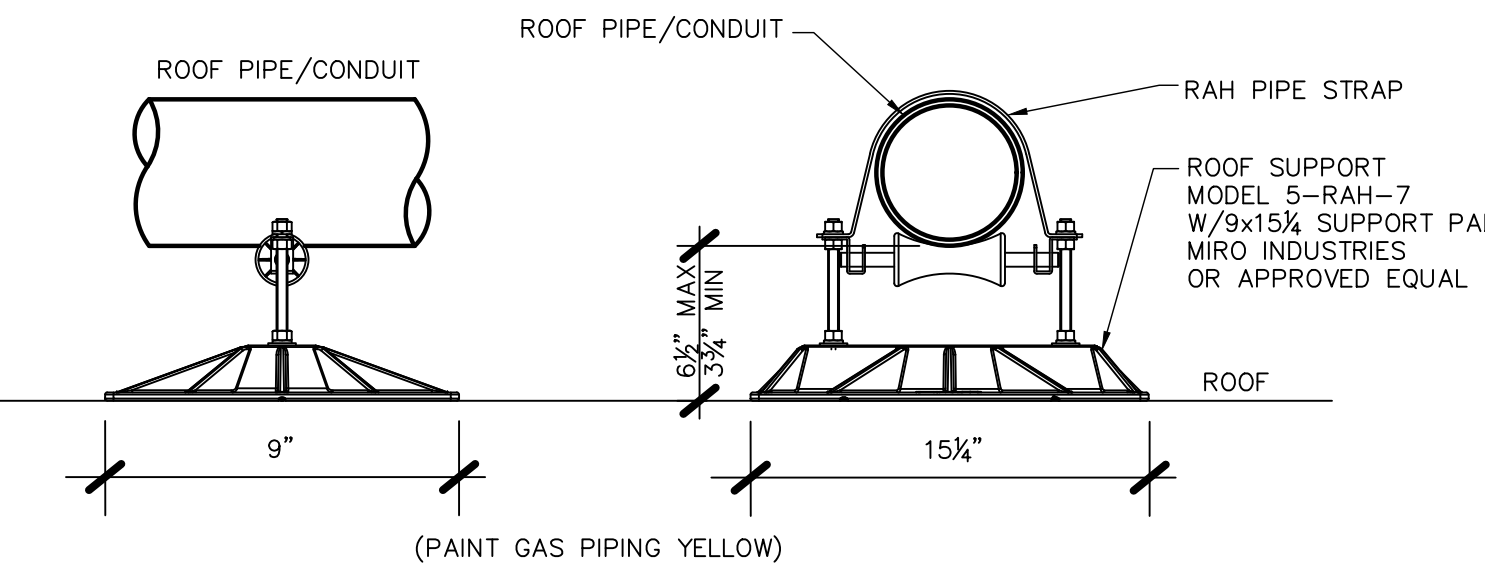
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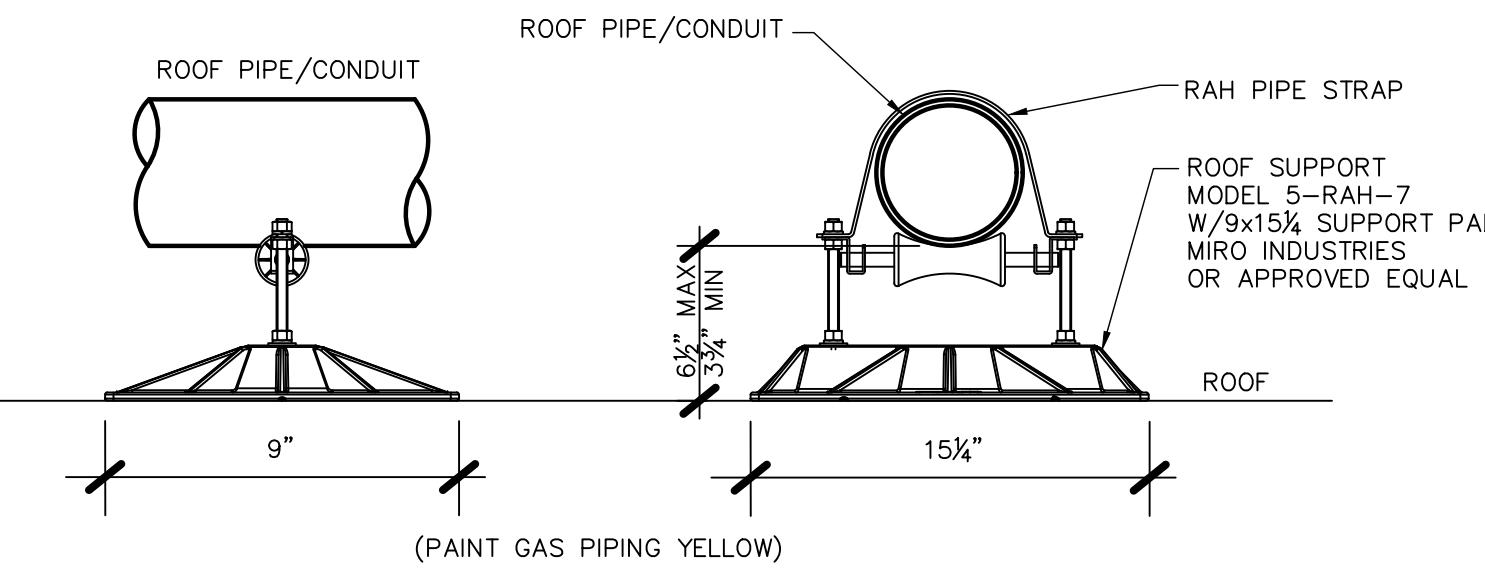
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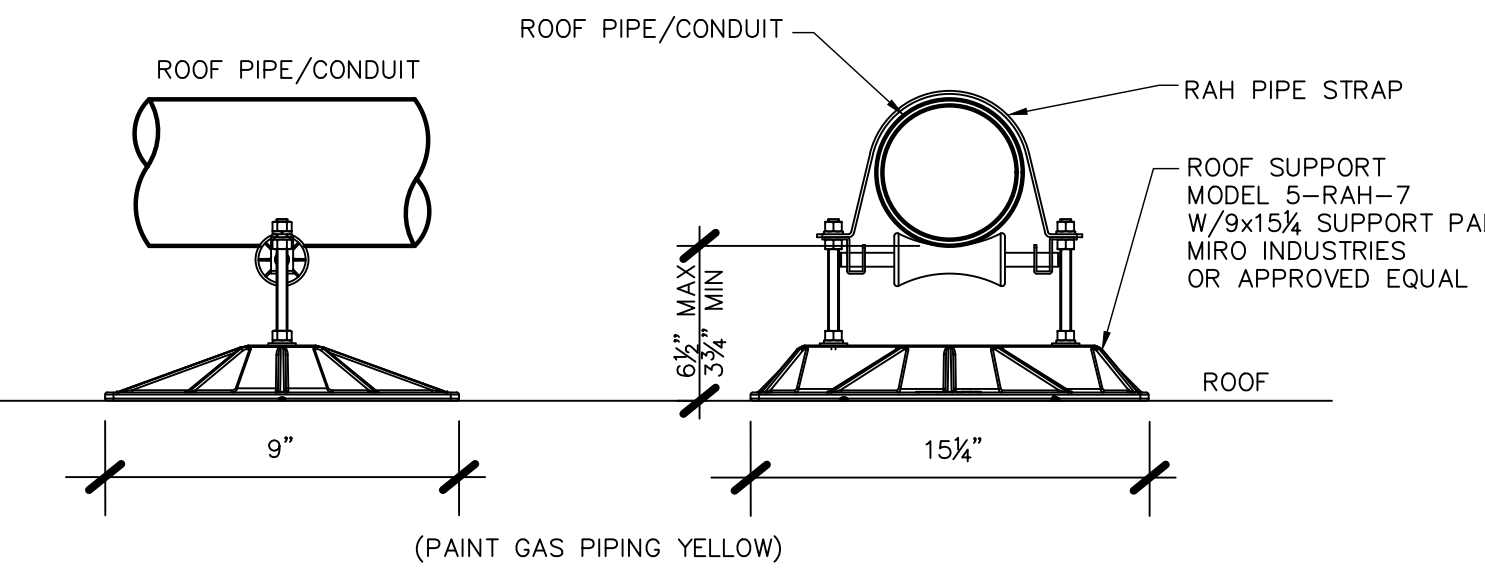
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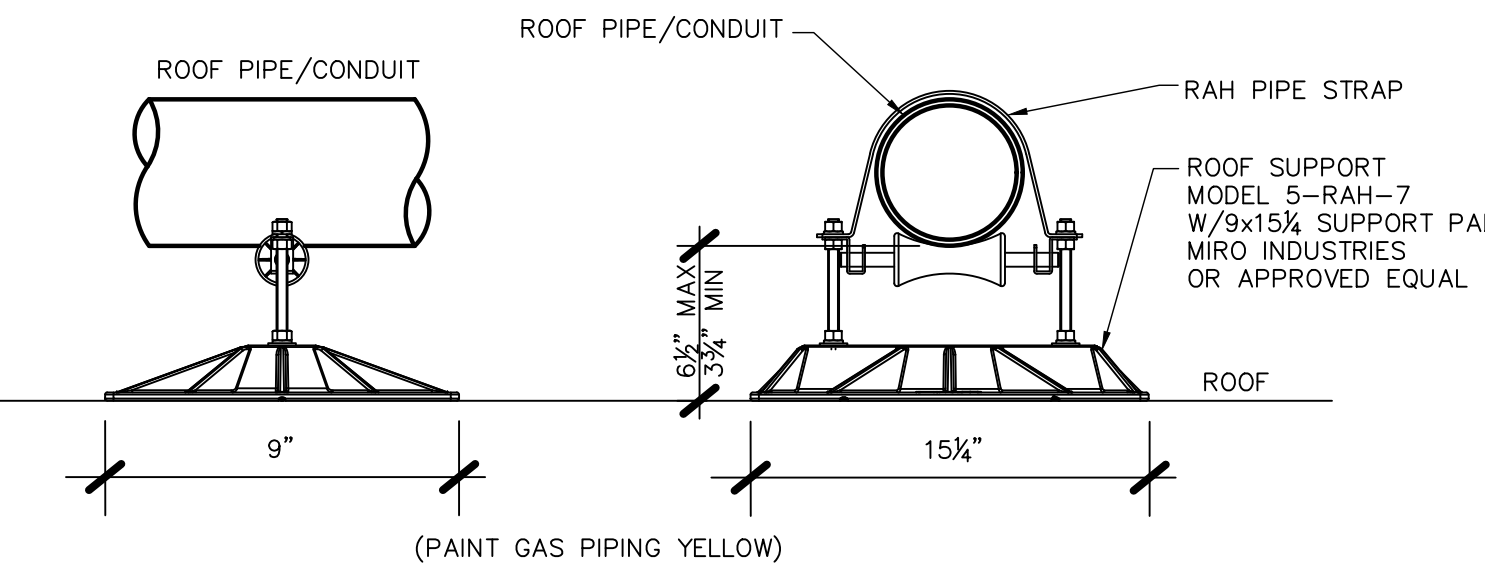
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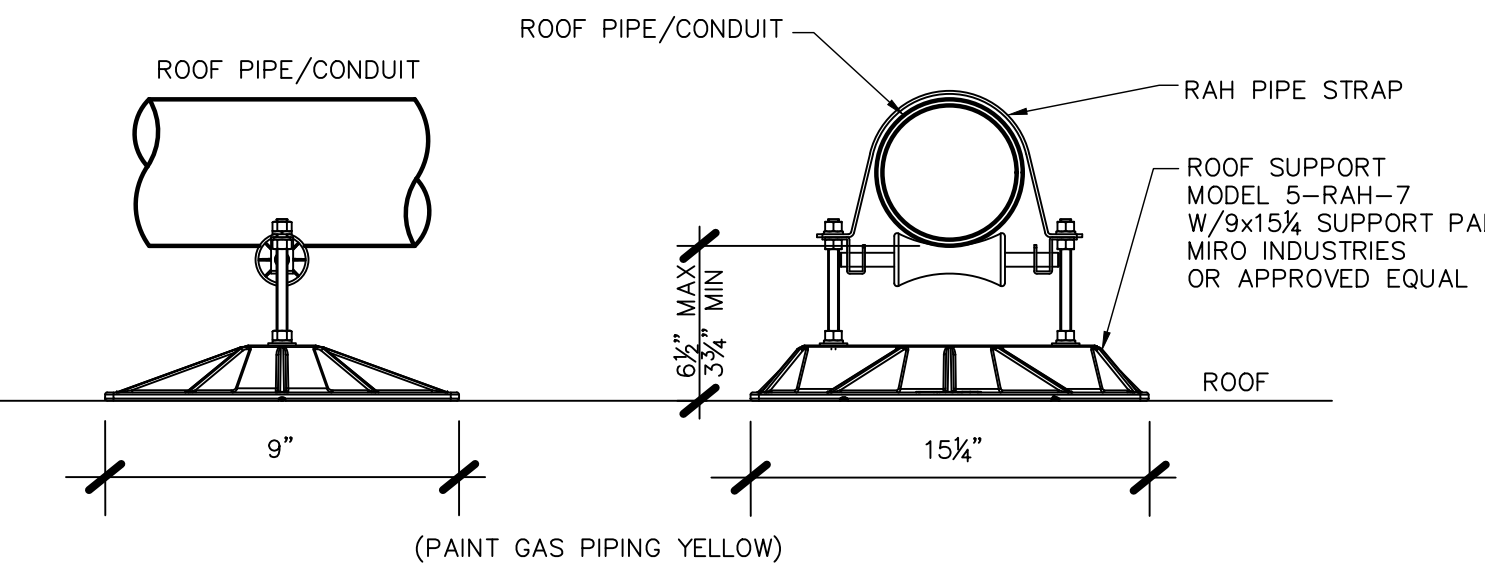
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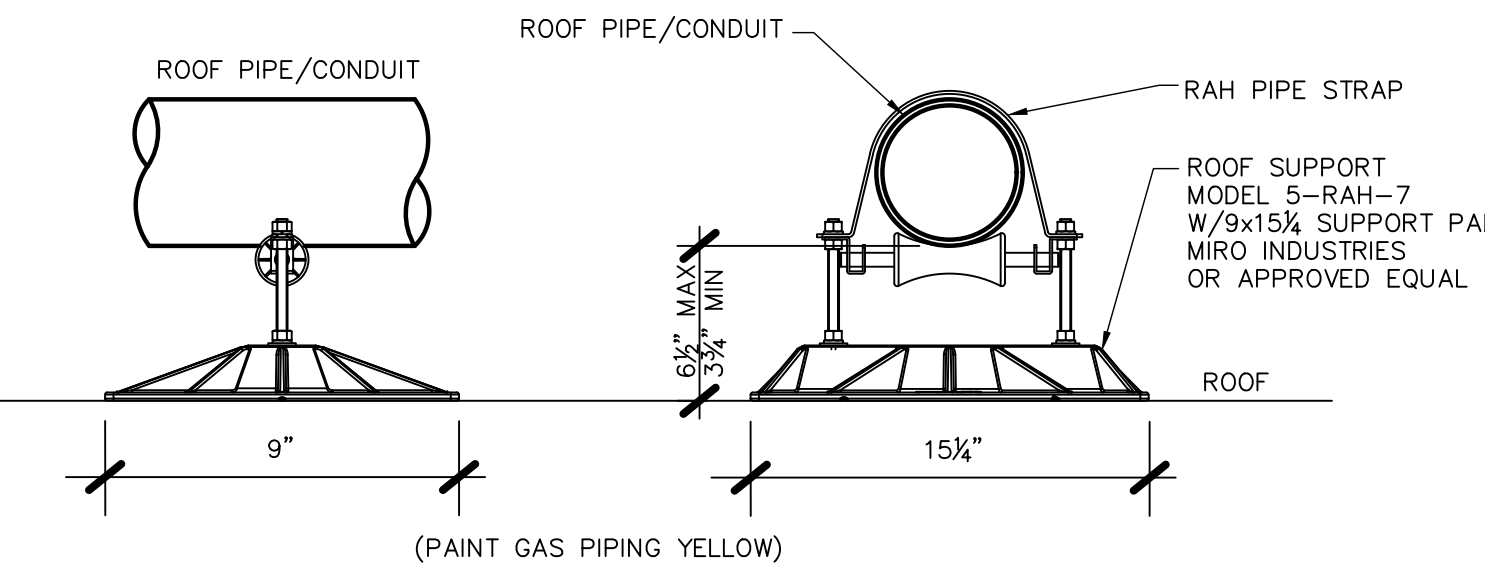
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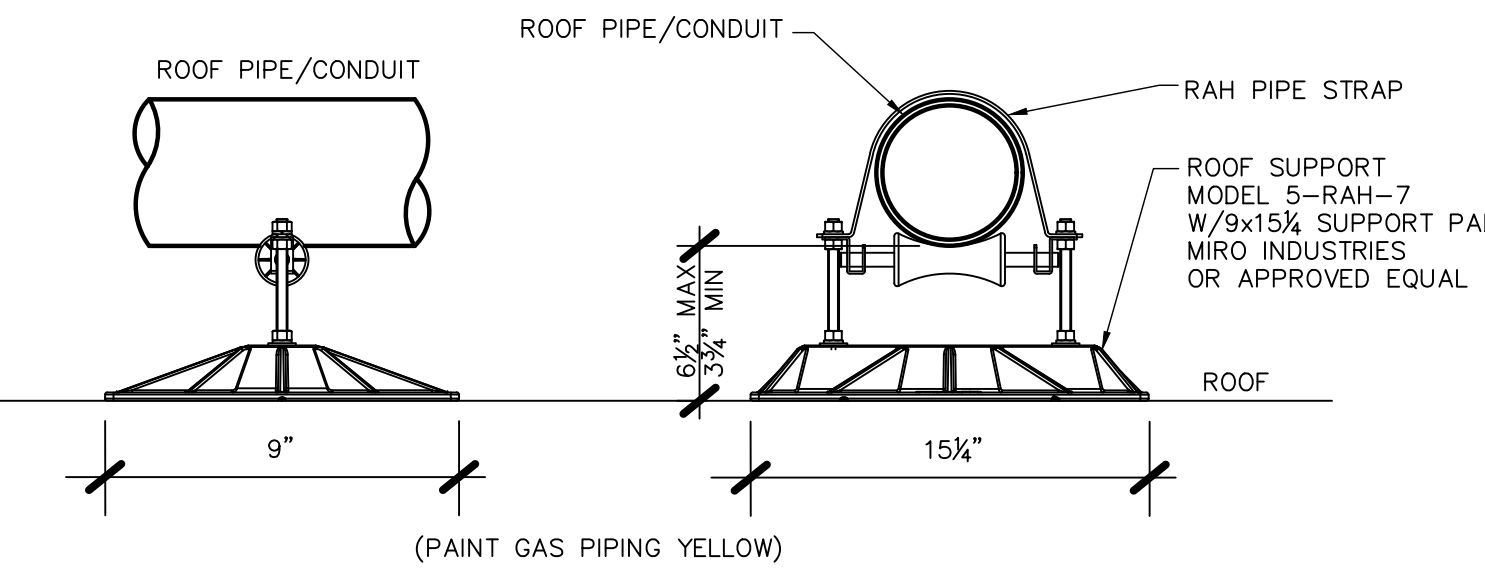
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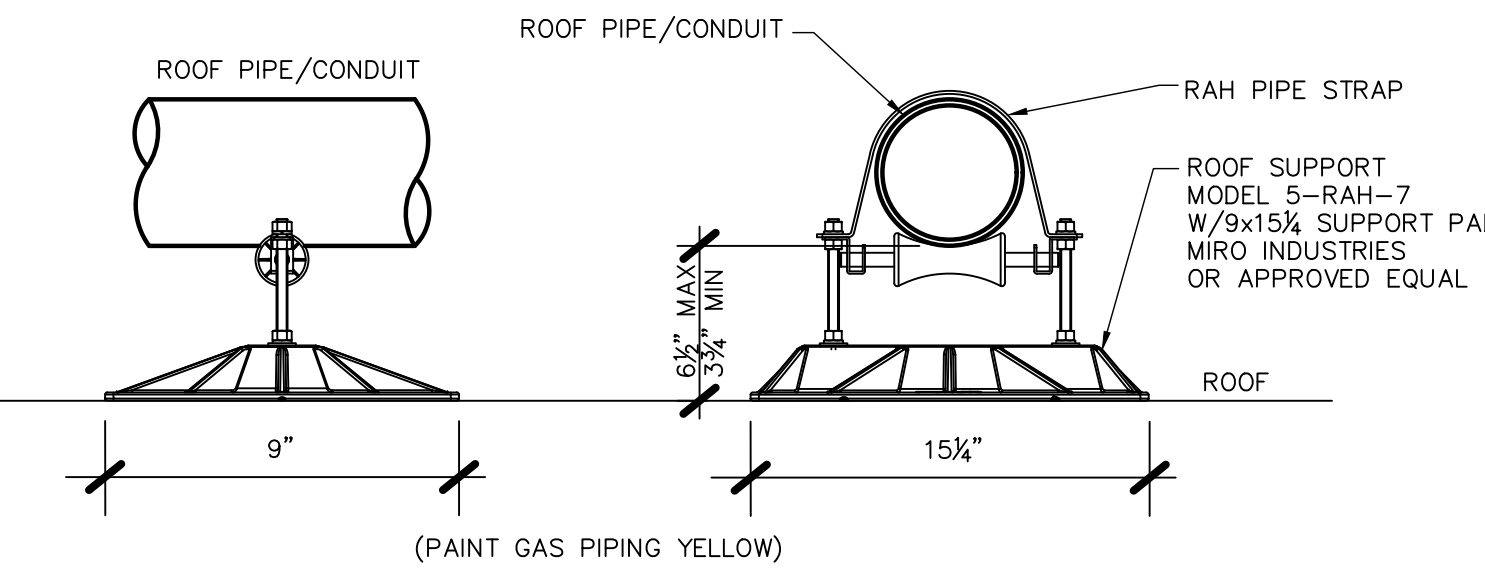
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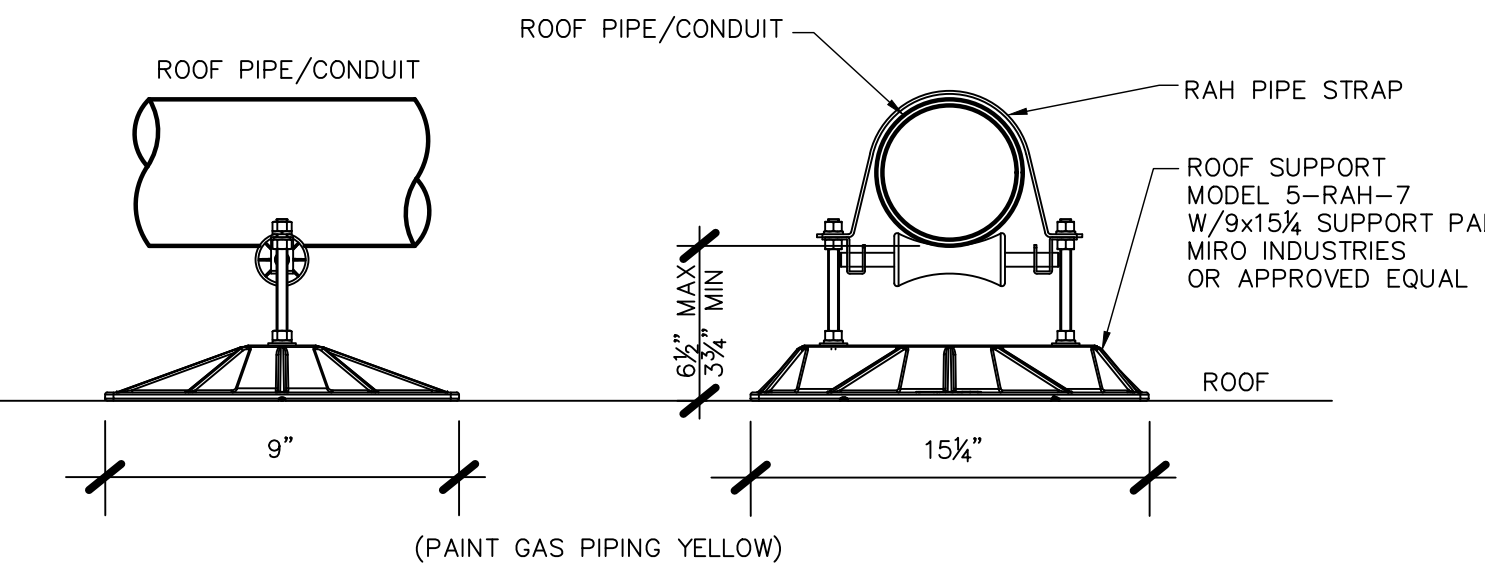
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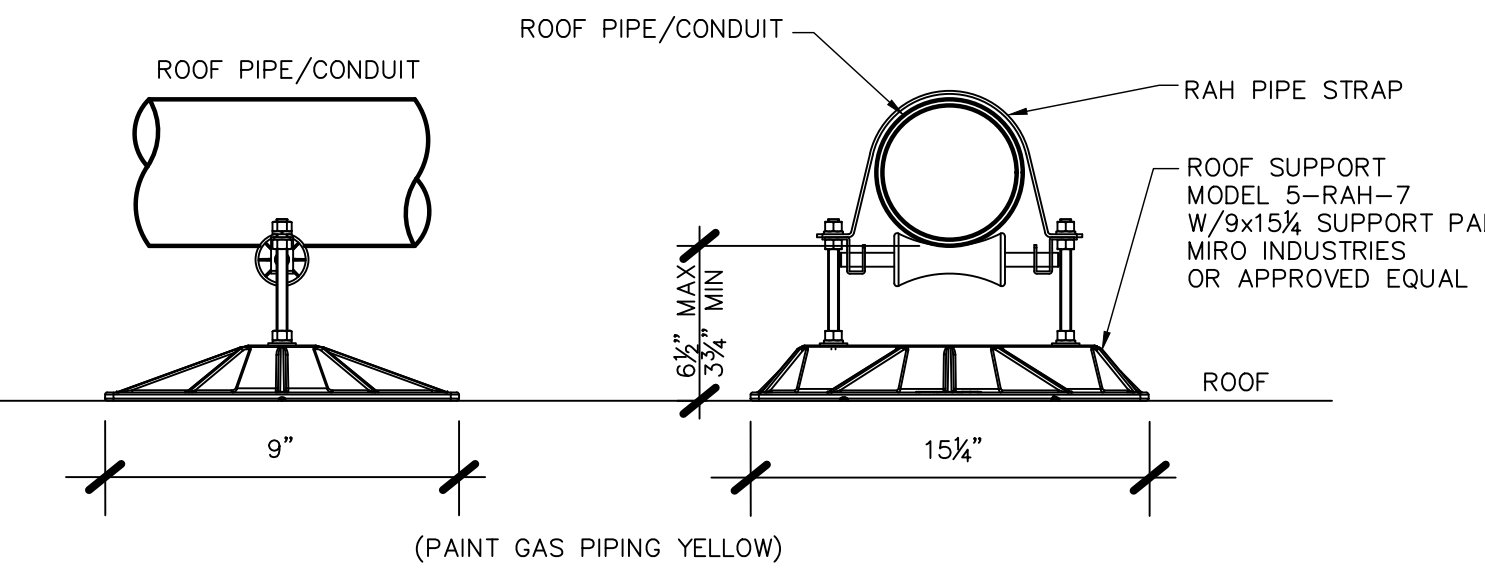
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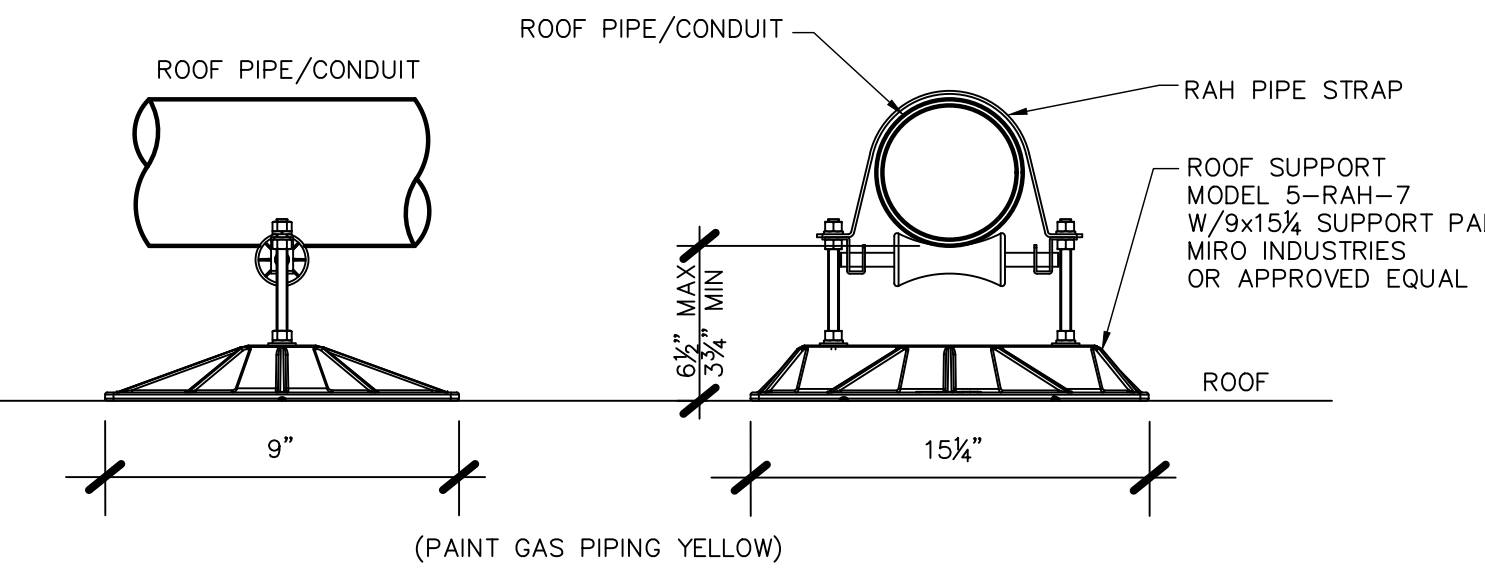
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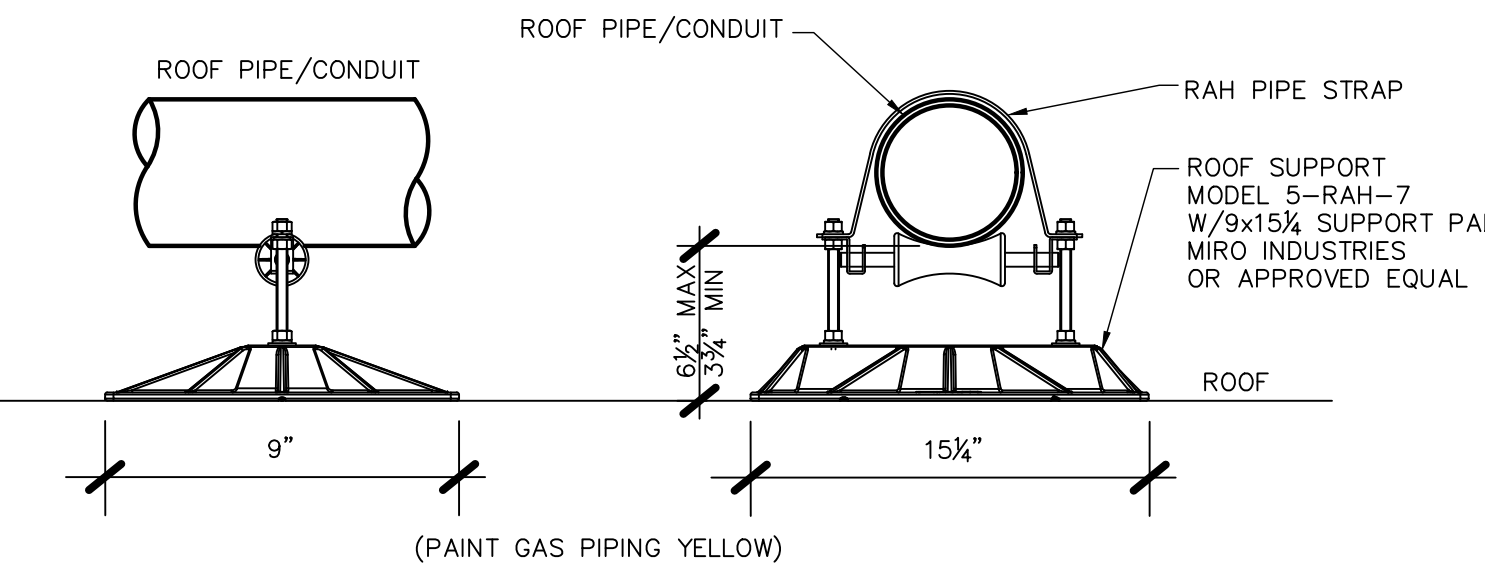
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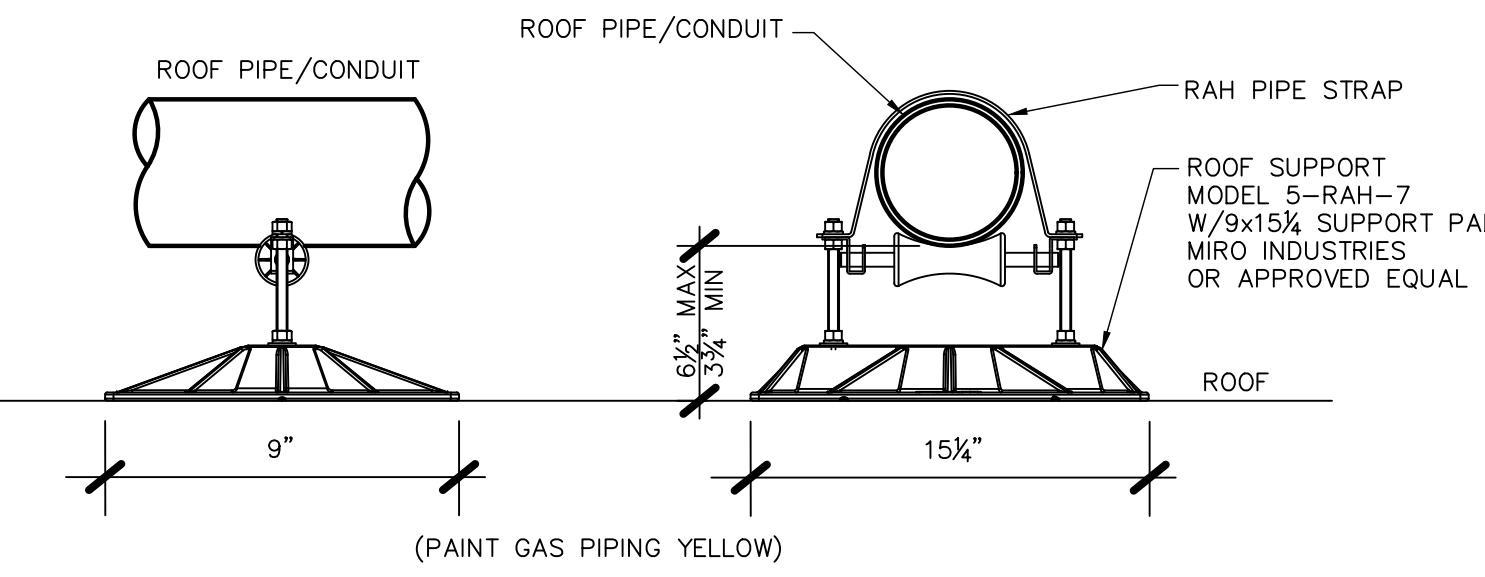
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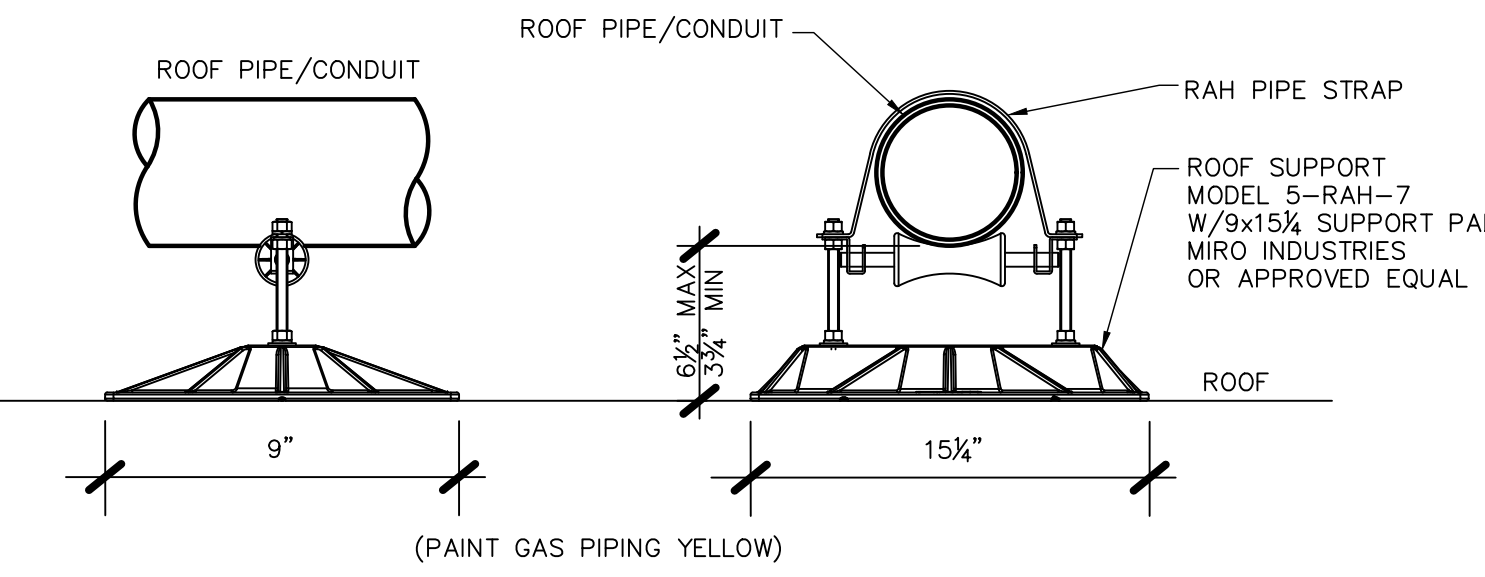
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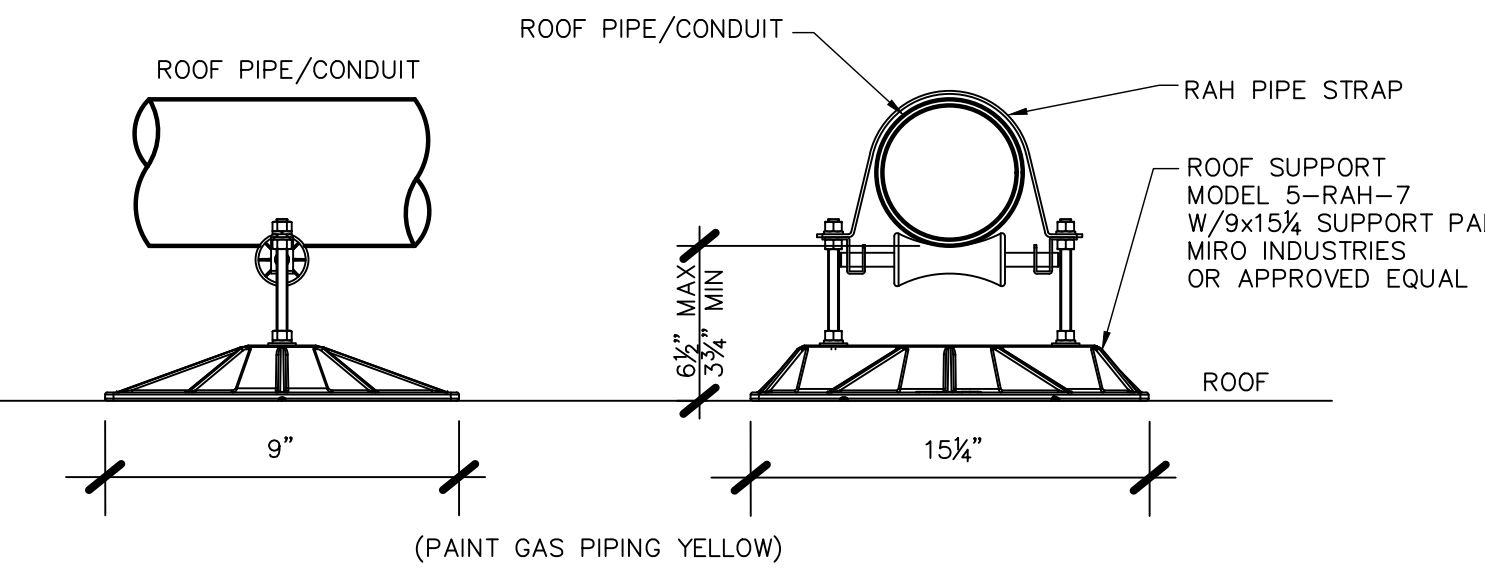
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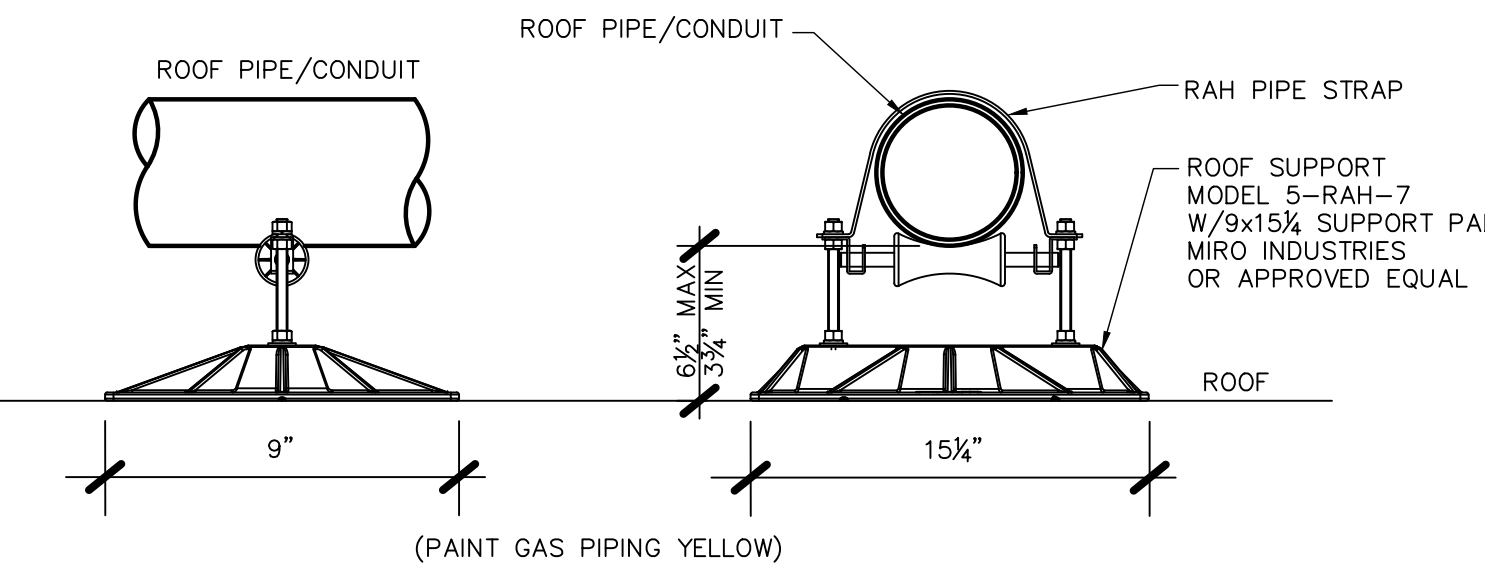
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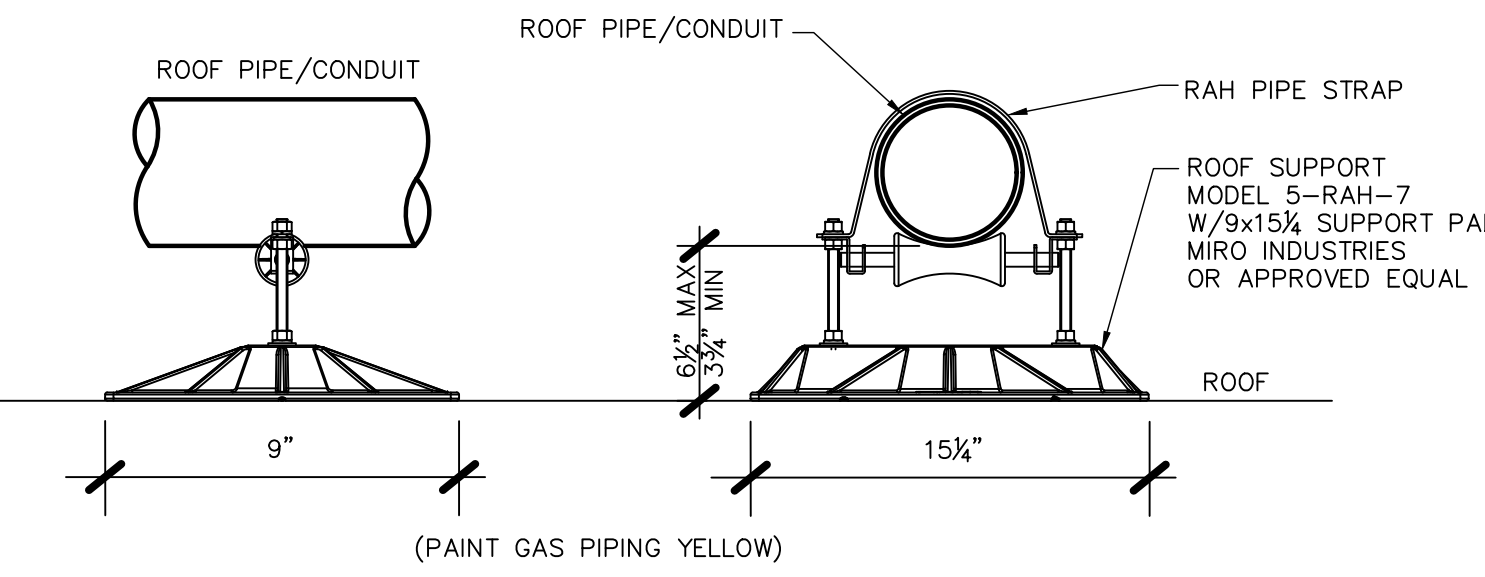
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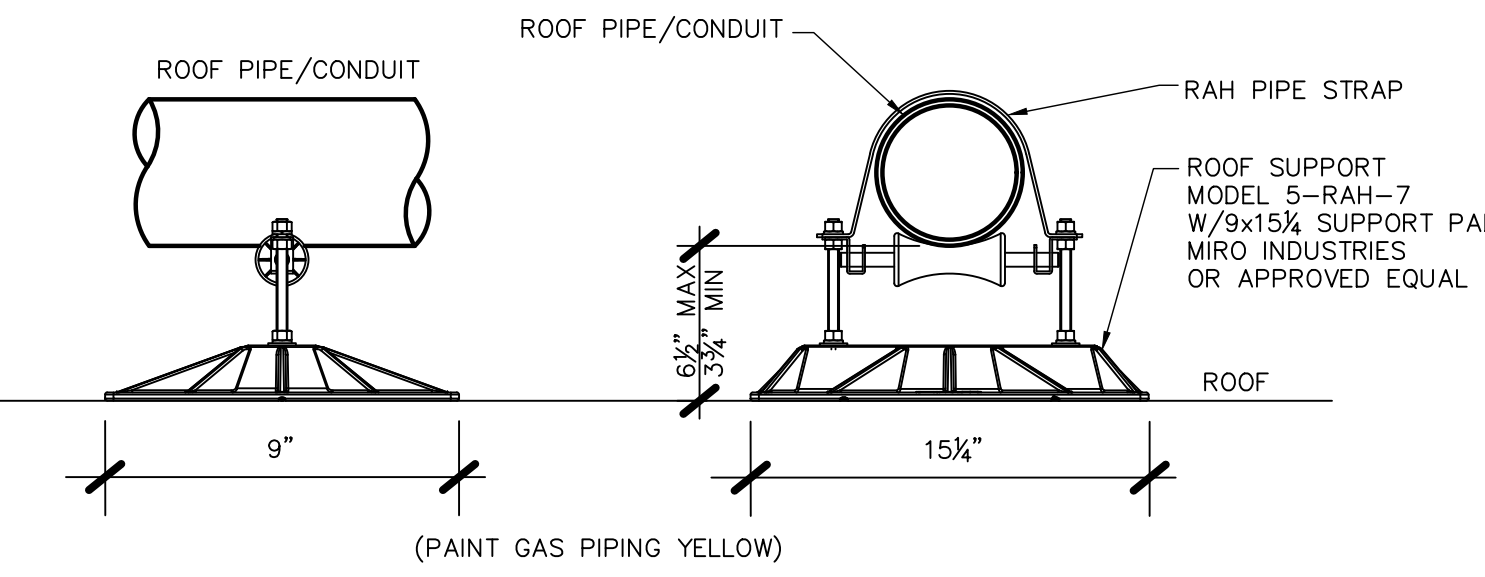
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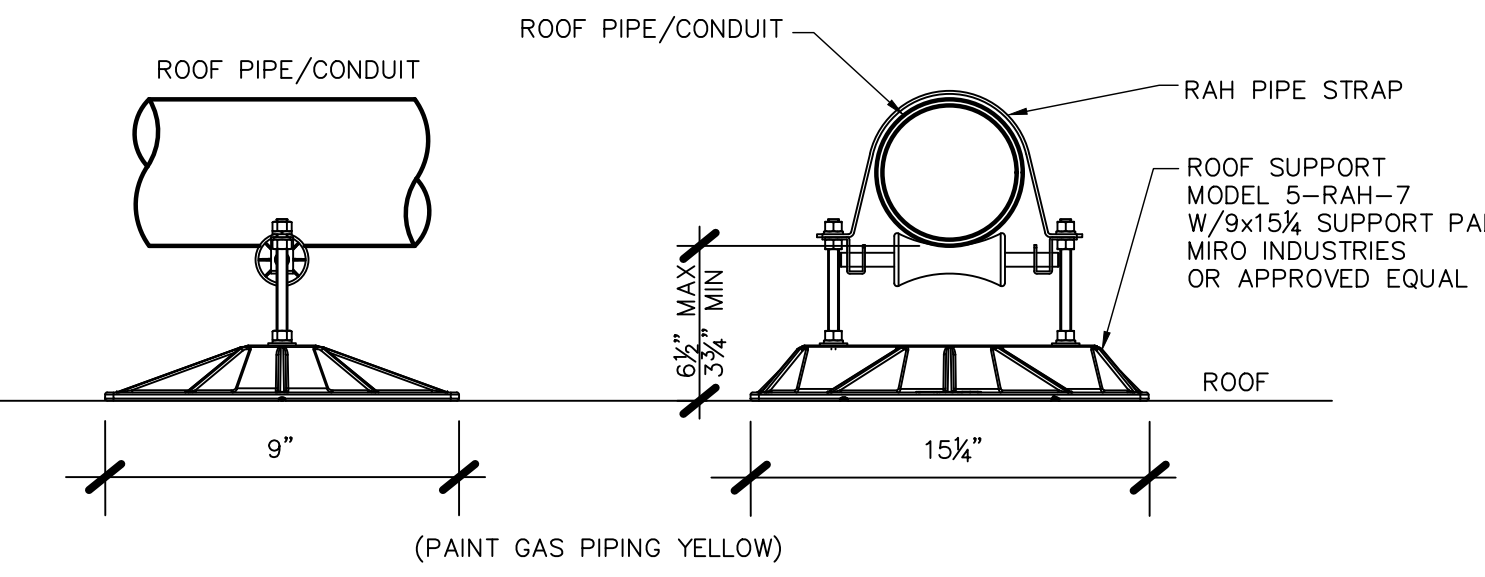
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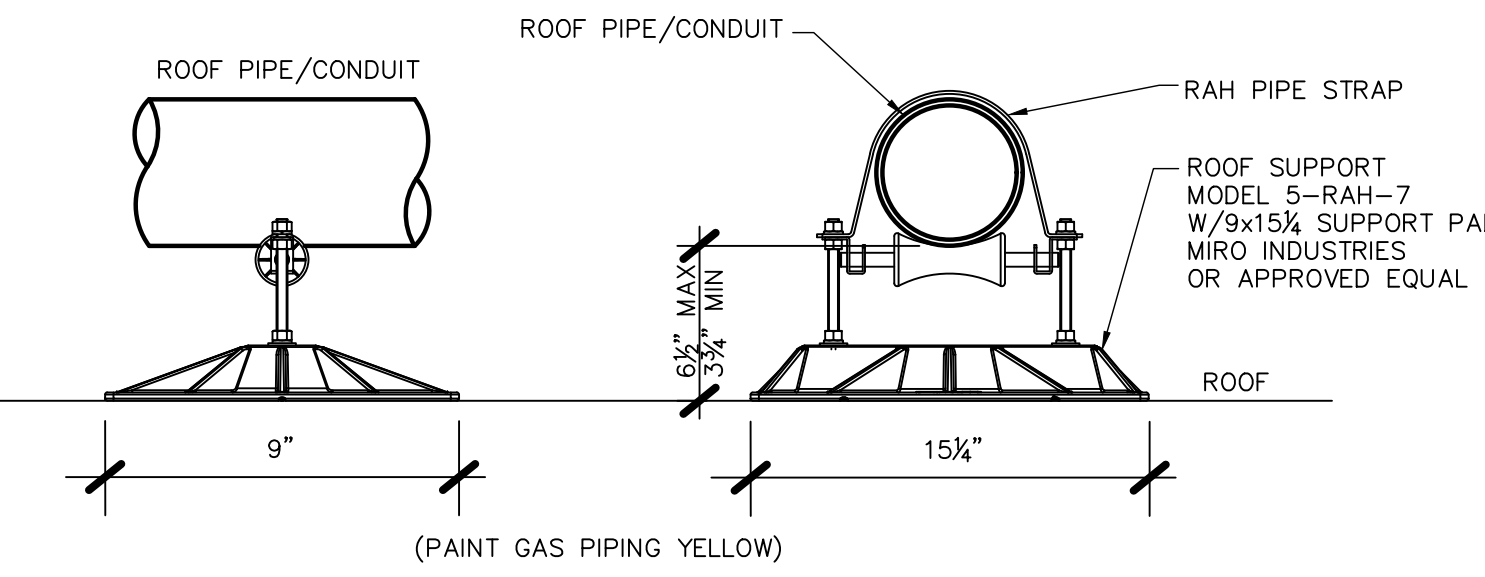
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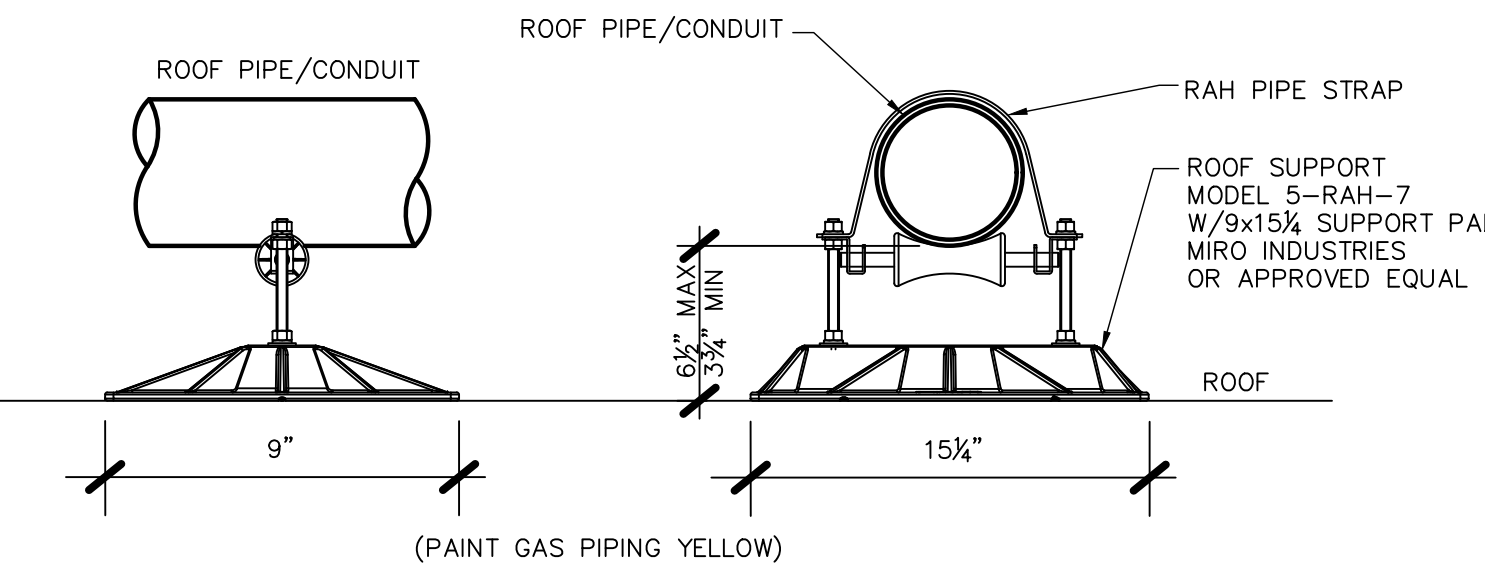
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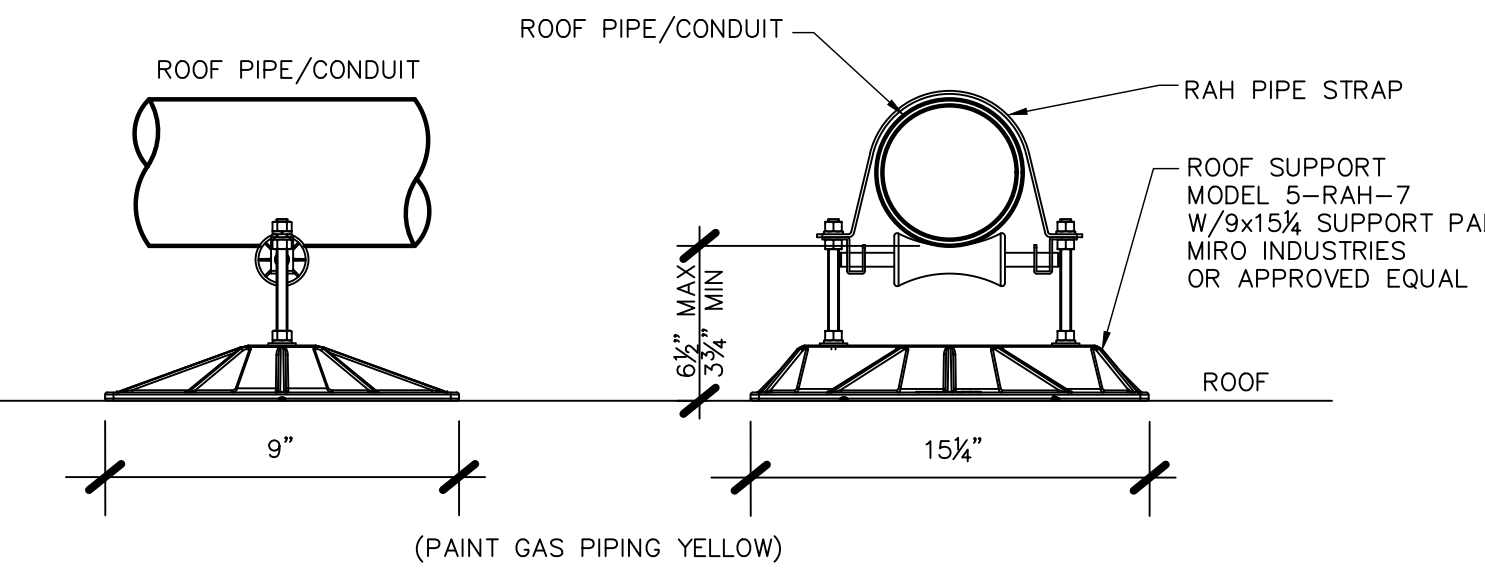
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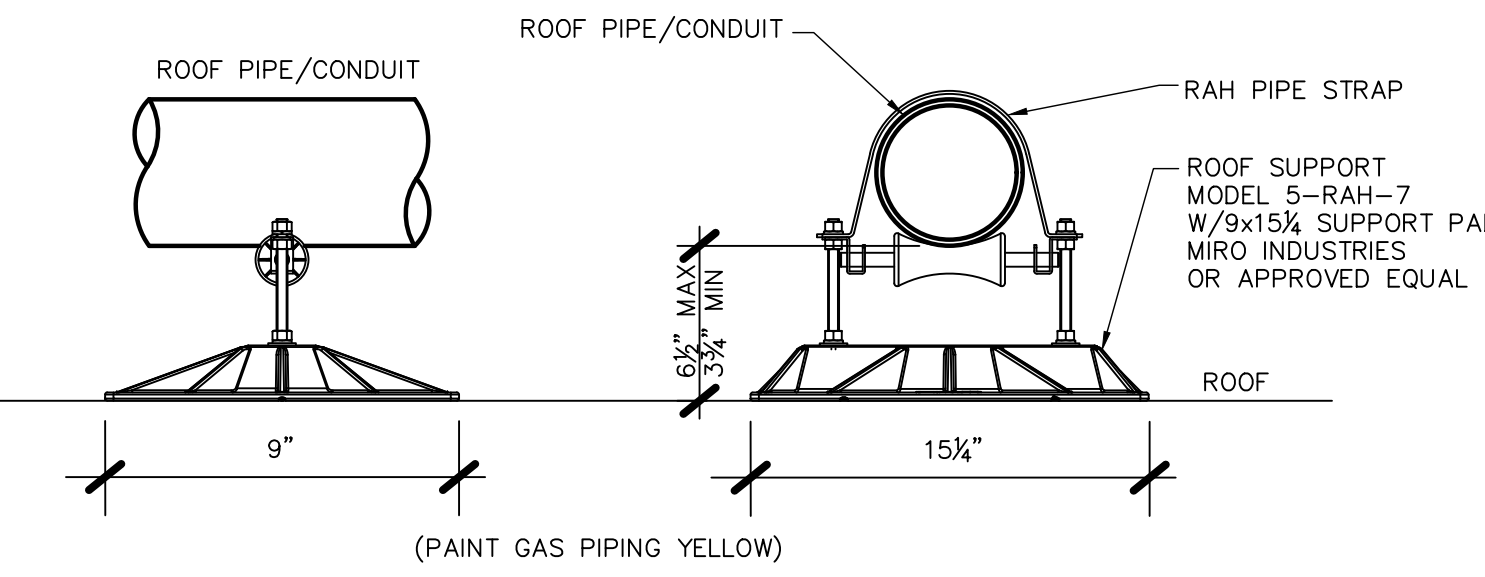
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6 ROOF SUPPORT FOR GAS PIPE (TYP)
SCALE: NONE



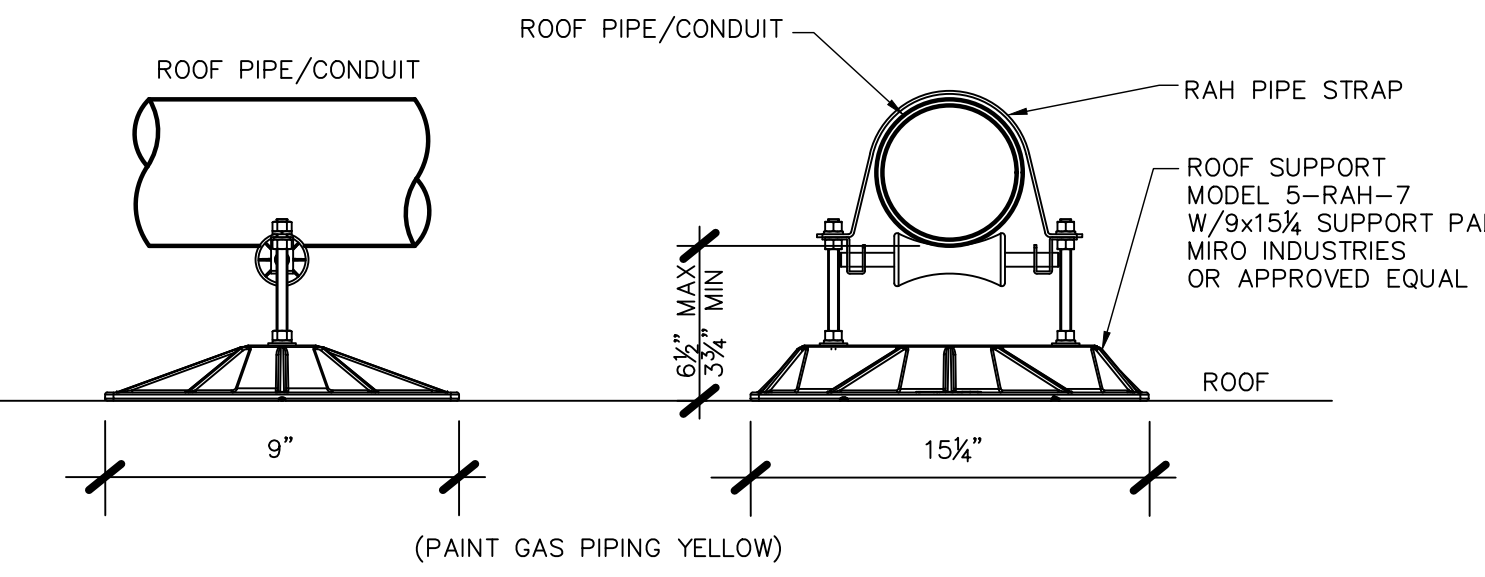
NOTE: MANUFACTURERS RECOMMENDED SPACING IS NOT TO EXCEED 10'-0" CENTERS.

6 ROOF SUPPORT FOR GAS PIPE (TYP)
SCALE: NONE



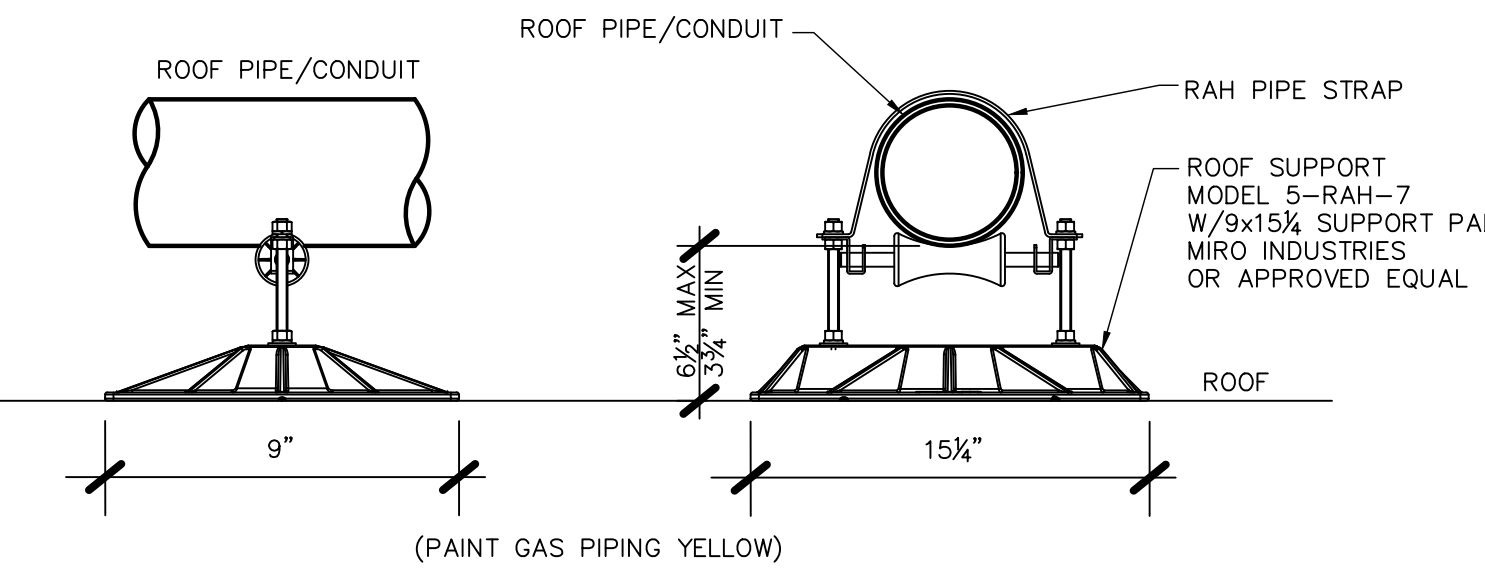
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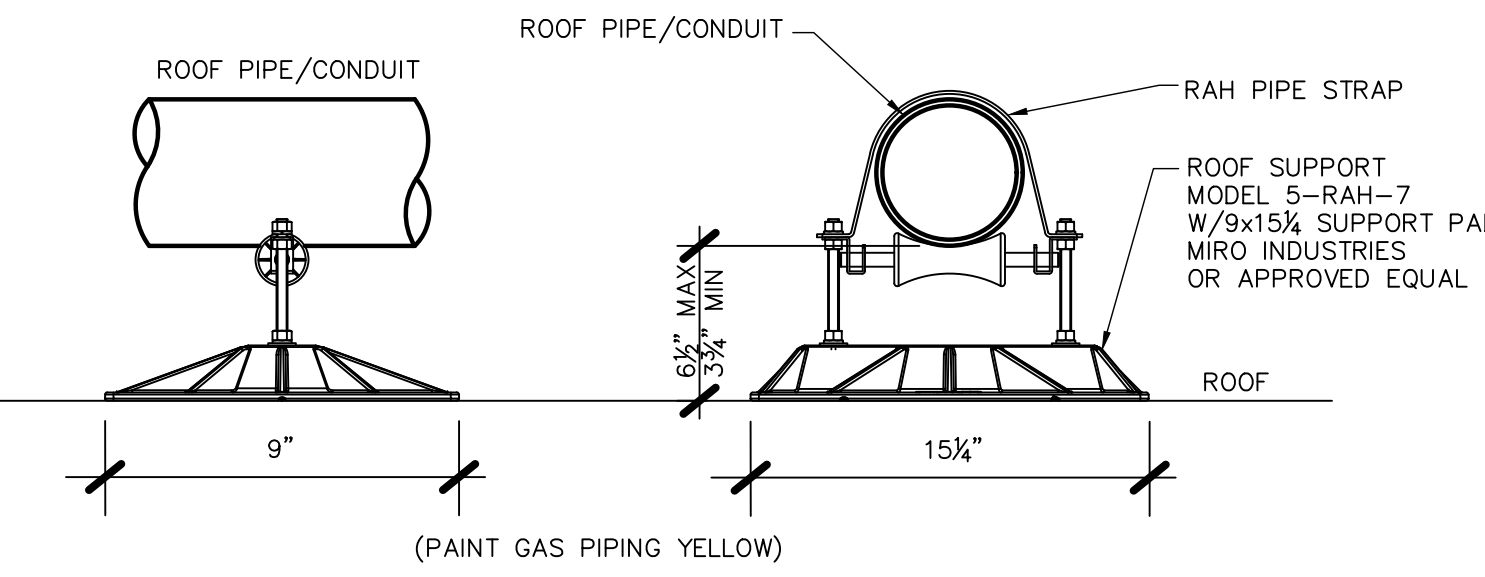
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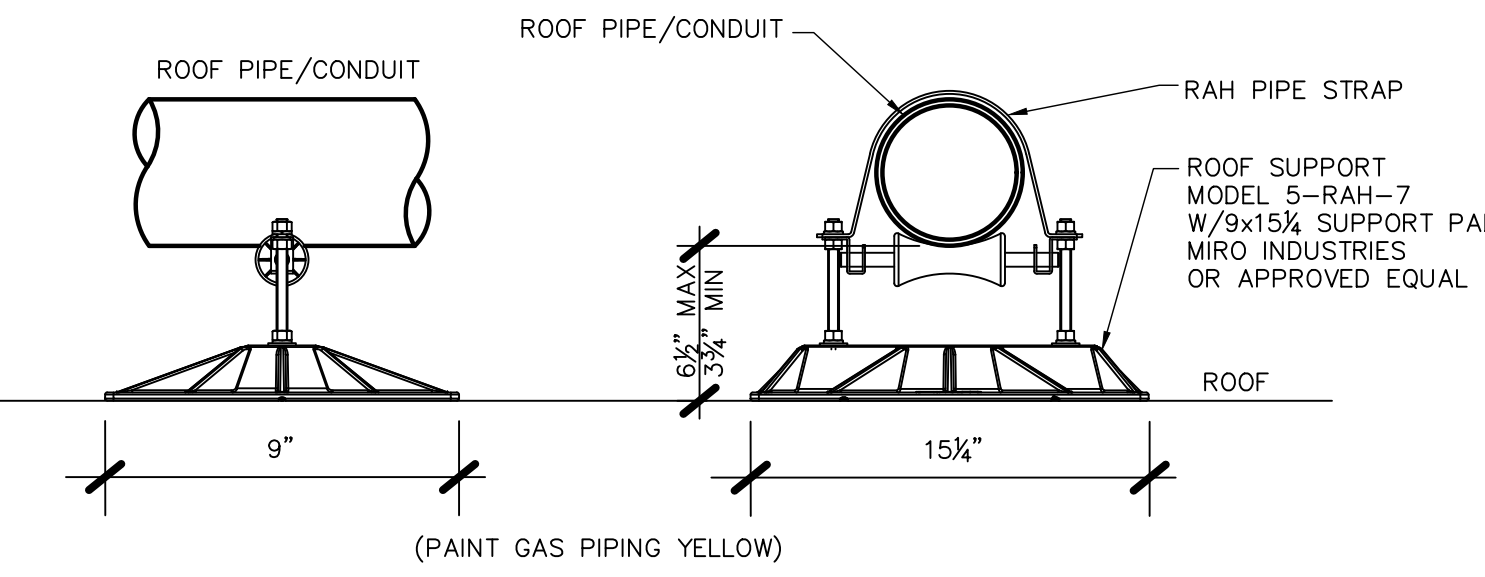
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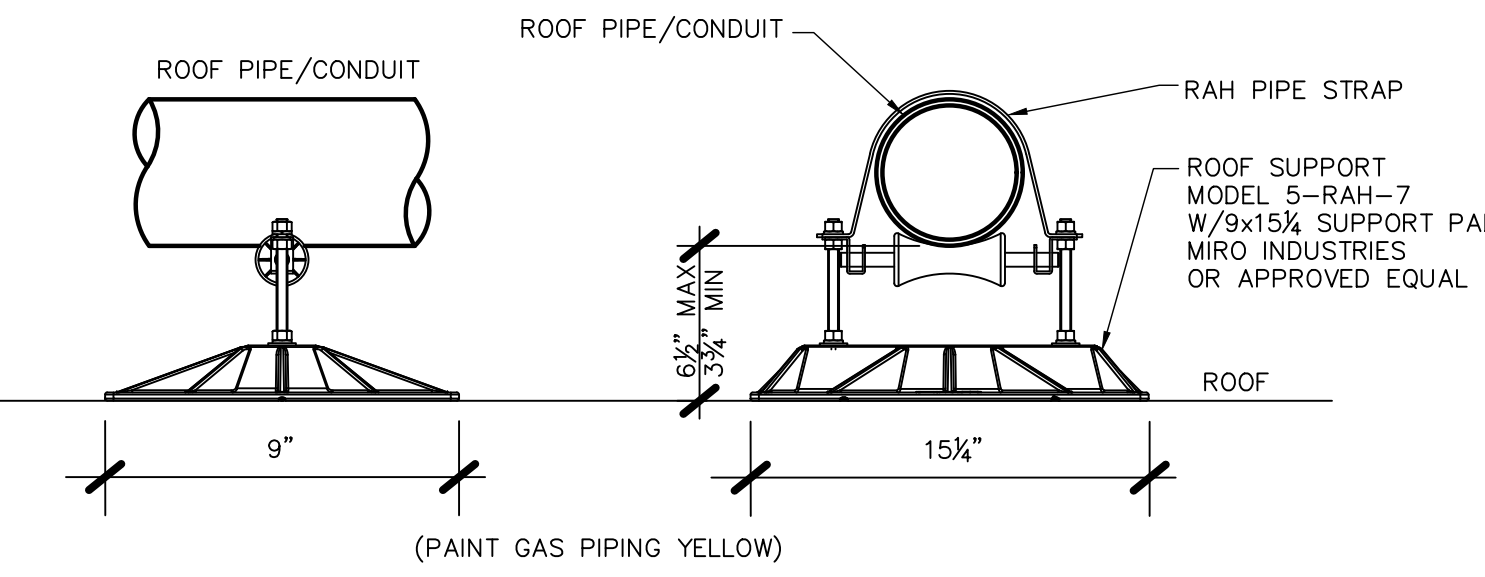
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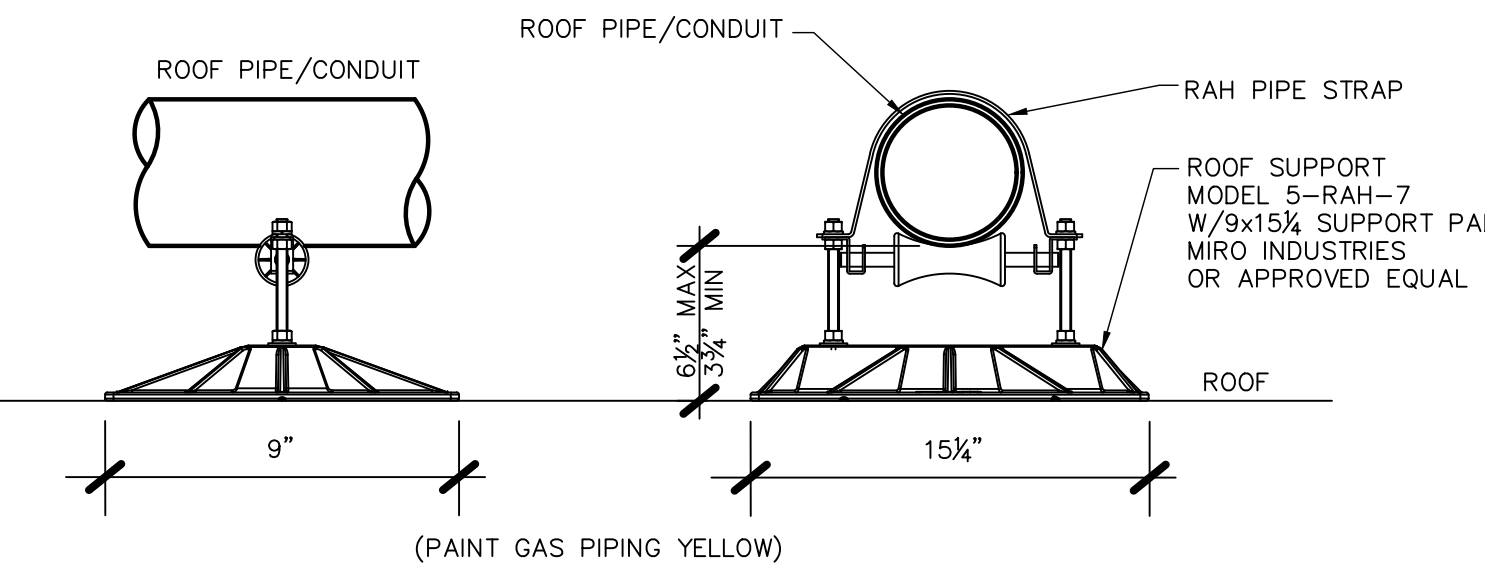
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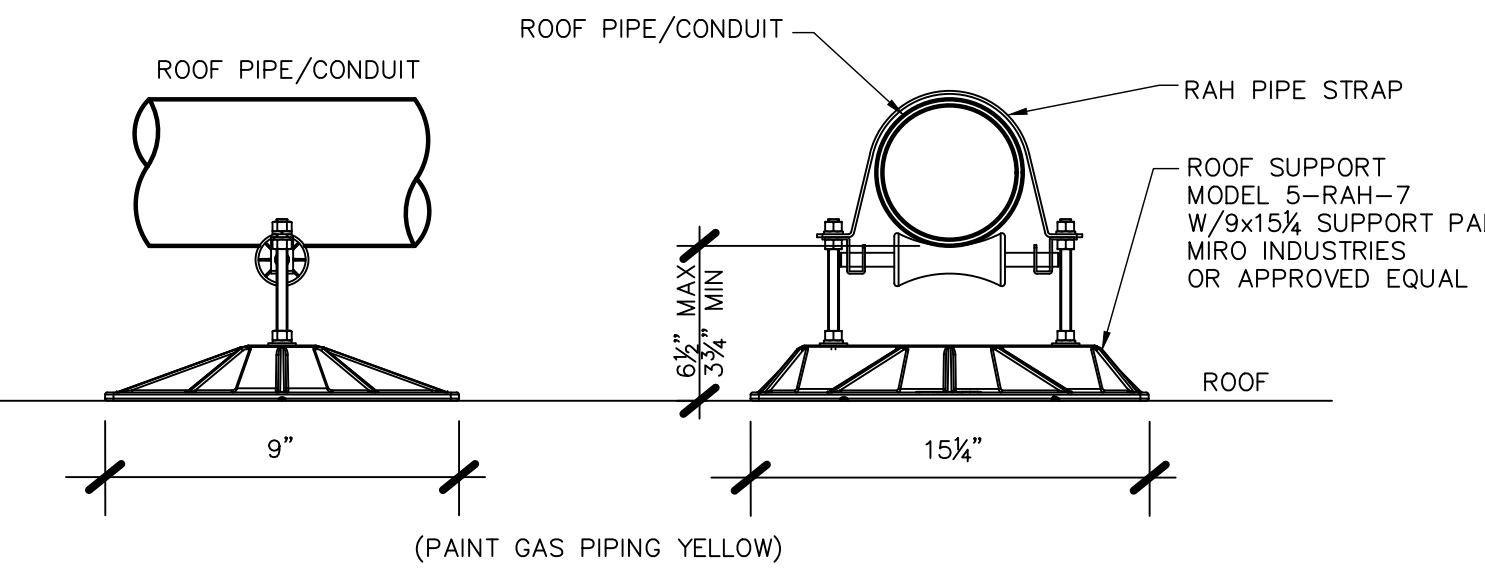
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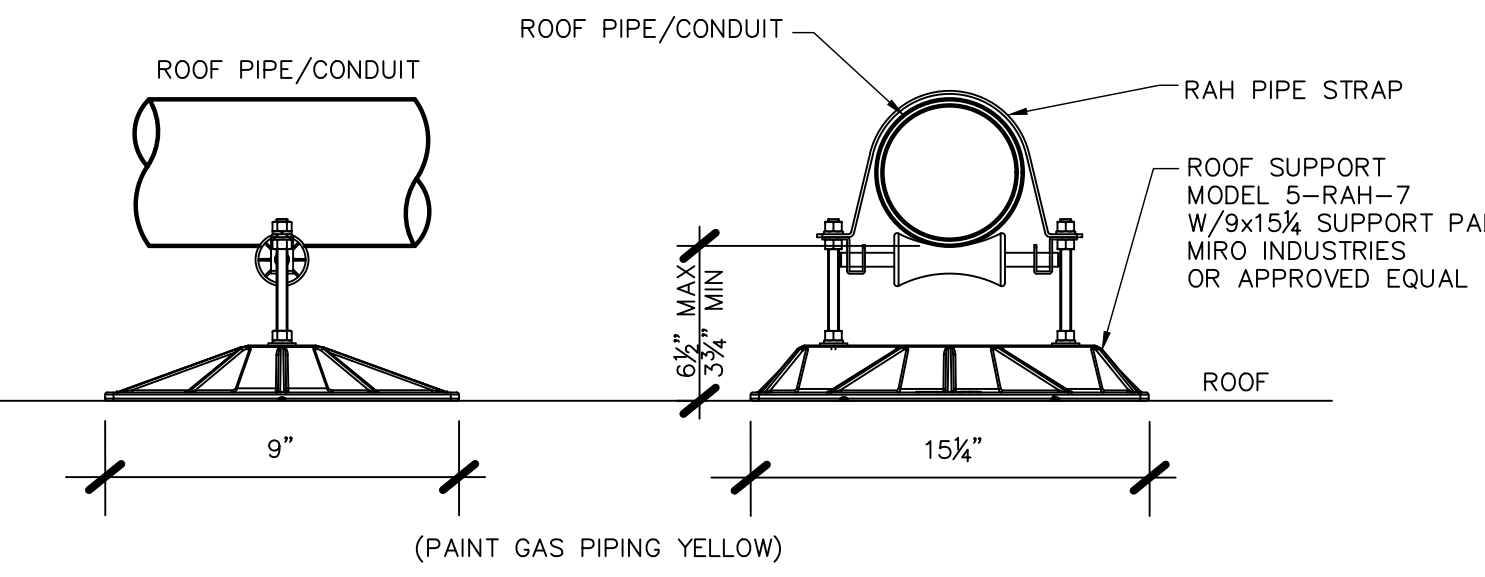
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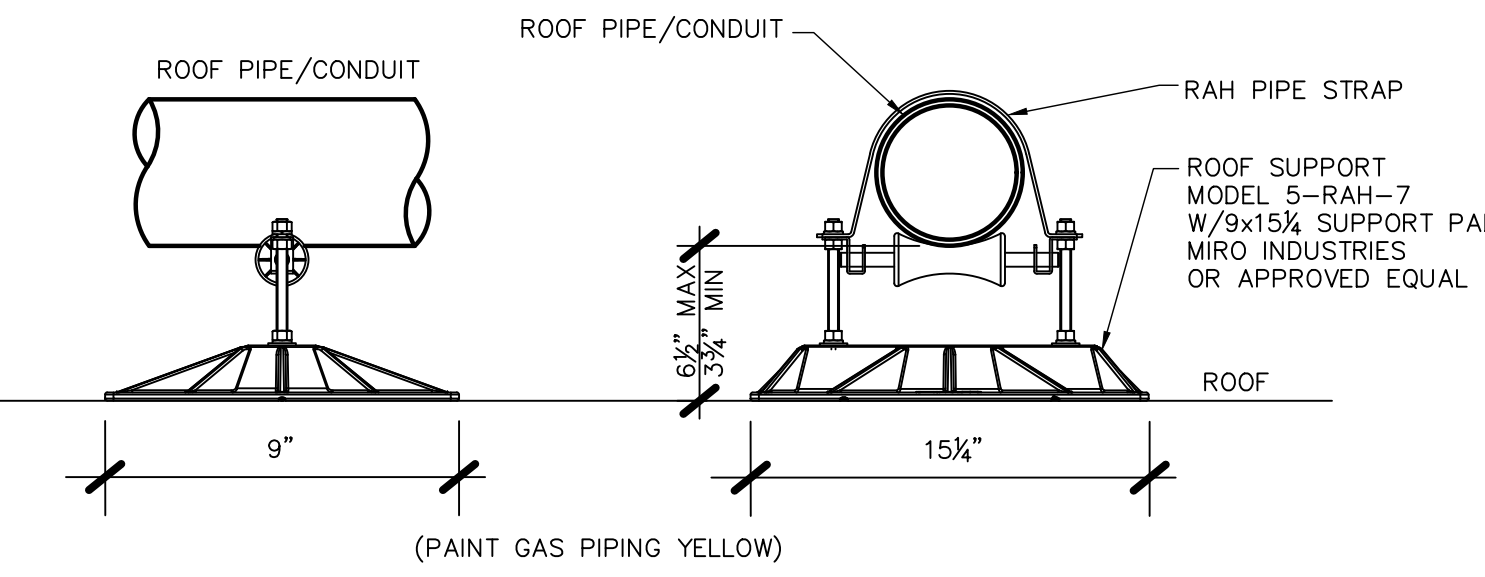
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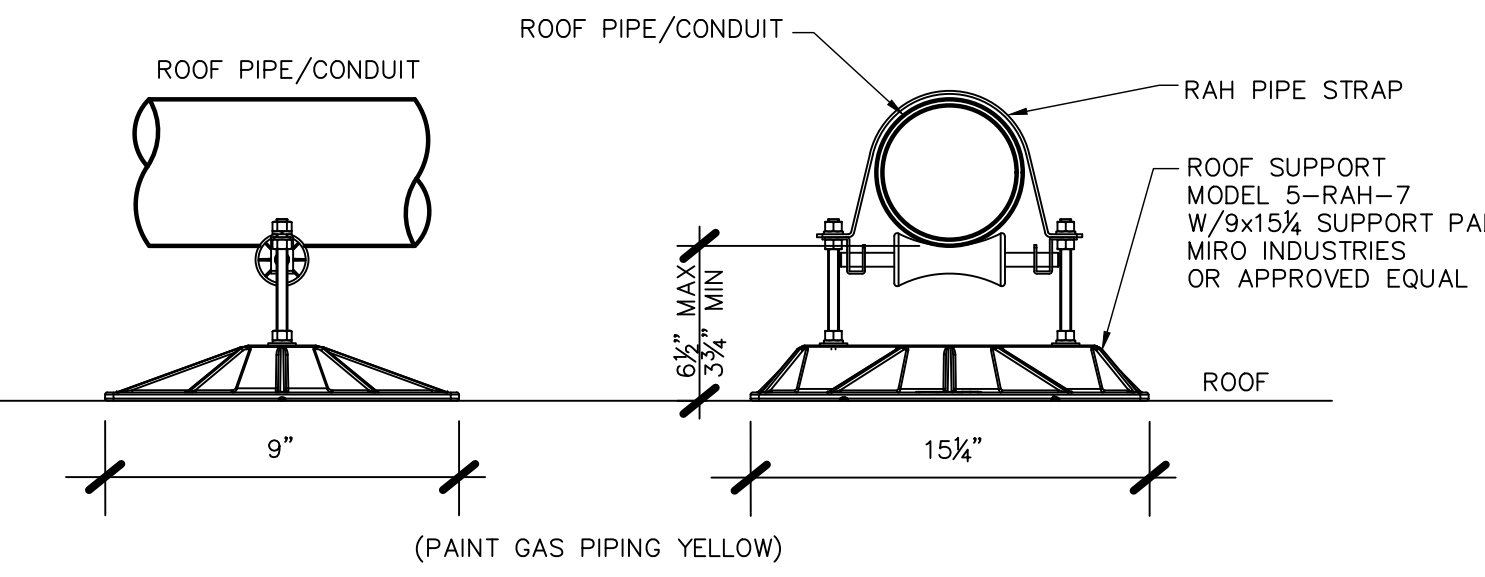
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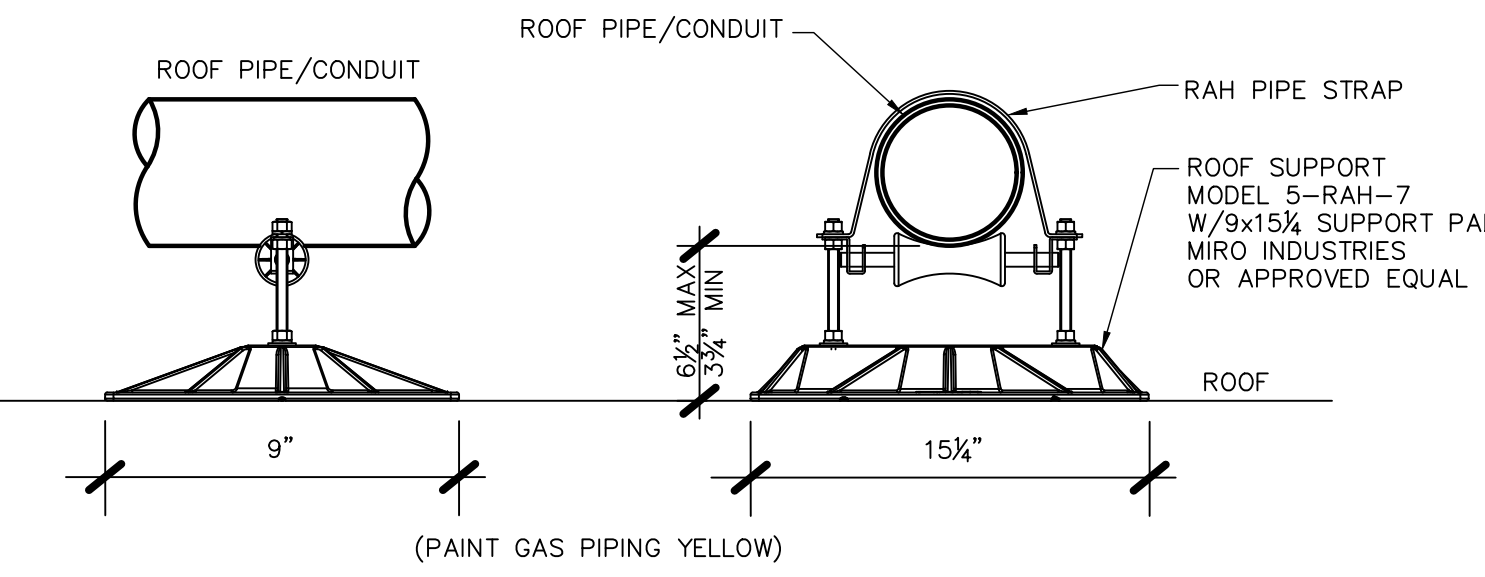
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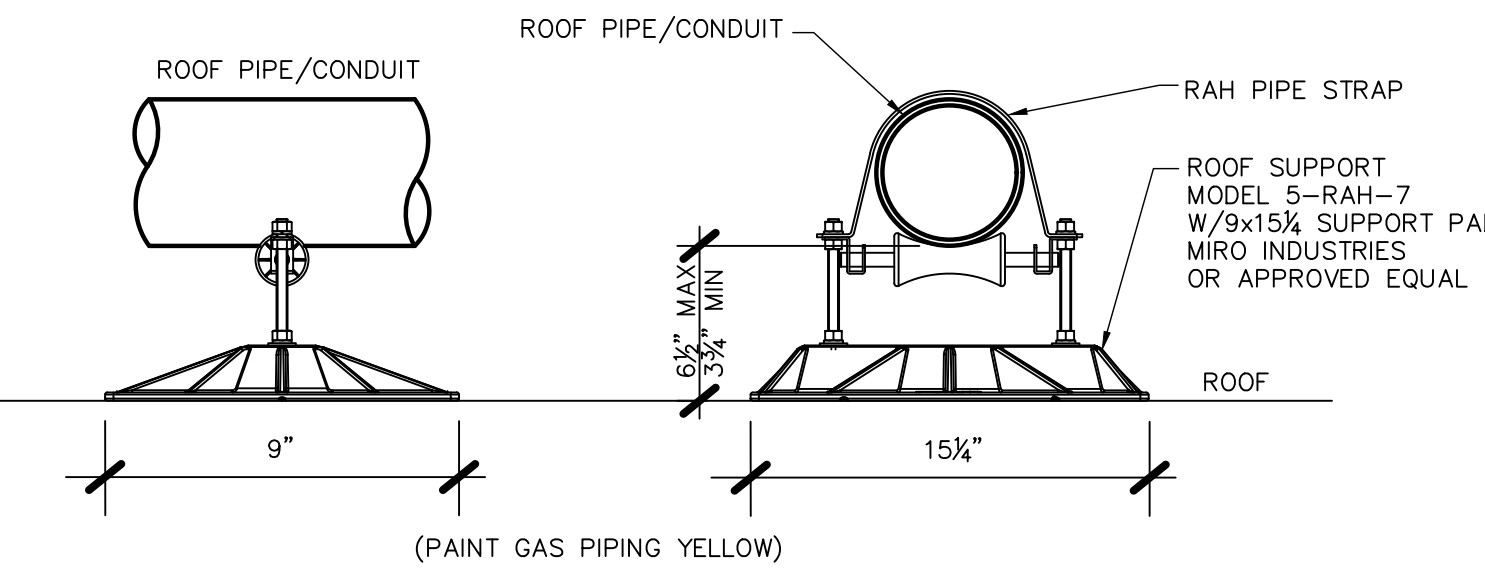
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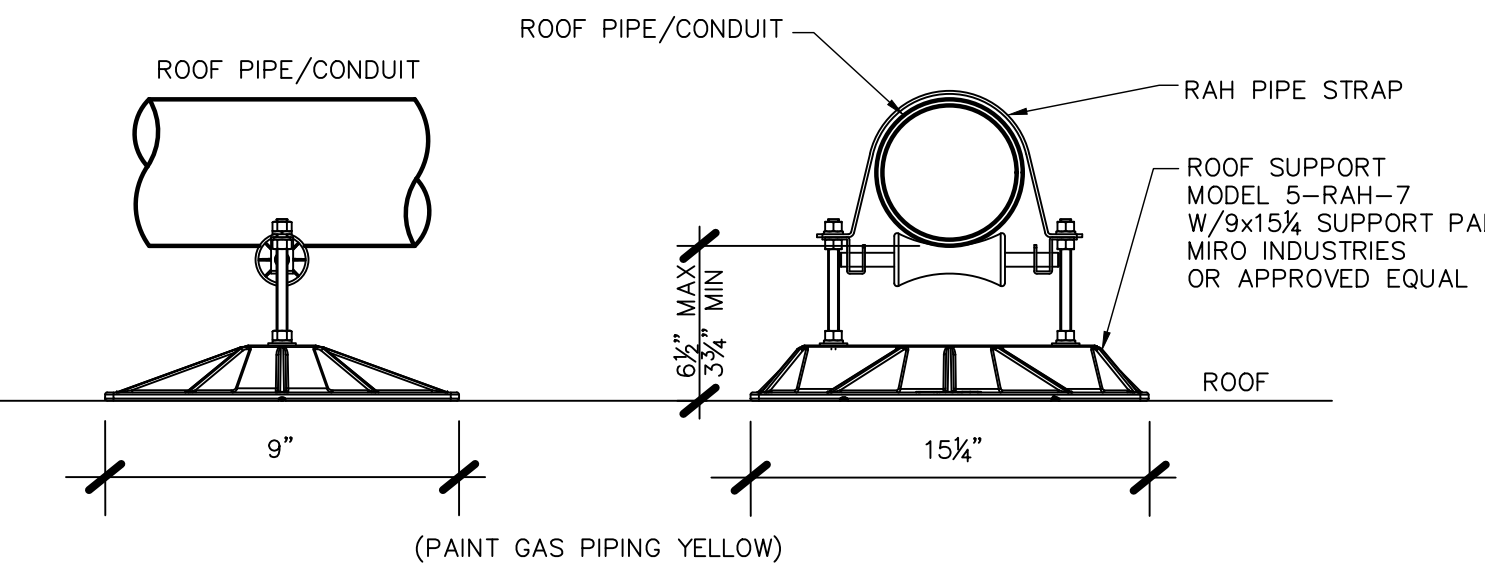
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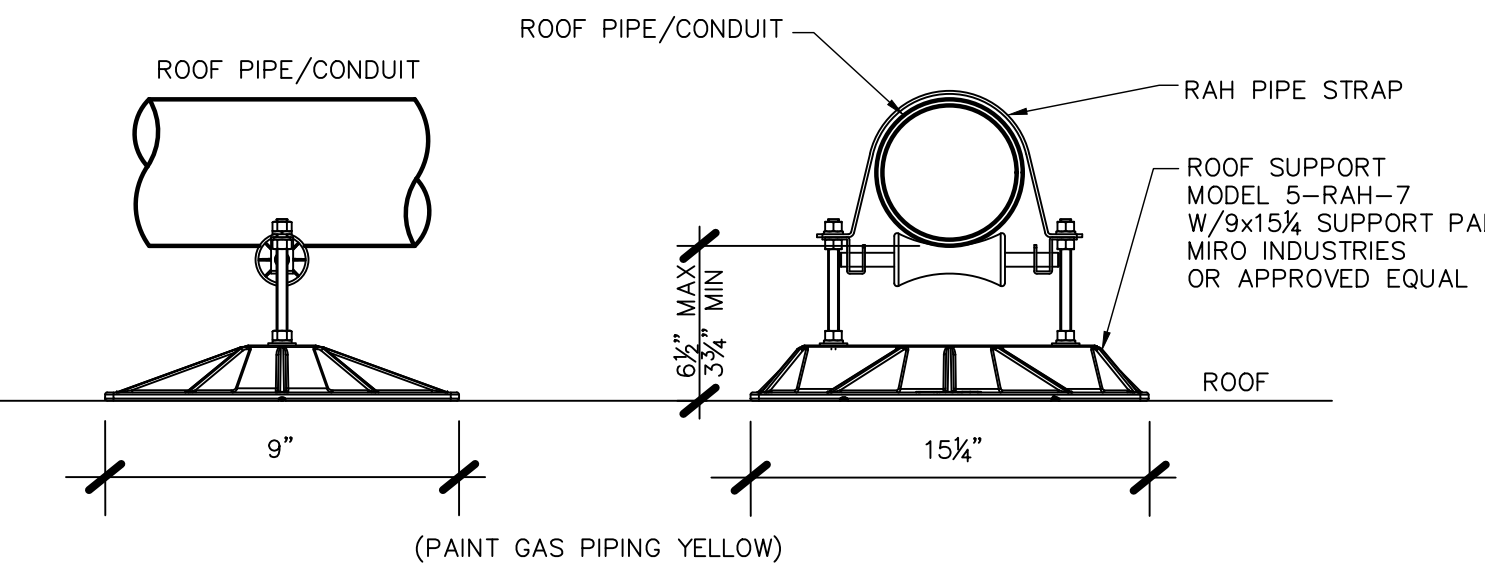
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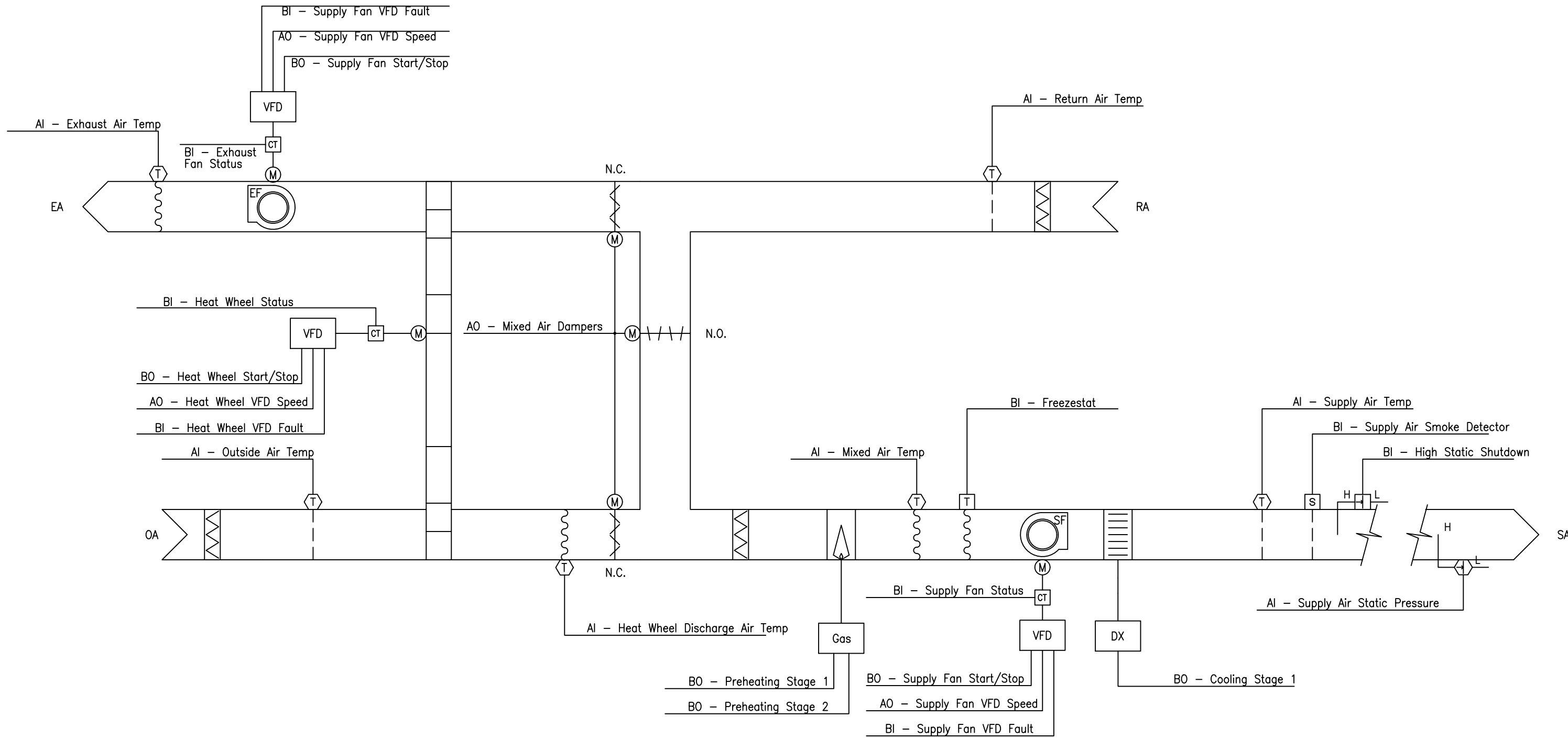


NOTE: MANUFACTURERS RECOMMENDED SPACING IS NOT TO EXCEED 10'-0" CENTERS.

6 ROOF SUPPORT FOR GAS PIPE (TYP)
SCALE: NONE

Point Name	Hardware Points					Software Points					Show On Graphic
	AI	AO	BI	BO	AV	BV	Loop	Sched	Trend	Alarm	
Exhaust Air Temp	x								x		x
Heat Wheel Discharge Air Temp	x								x		x
Mixed Air Temp	x								x		x
Outside Air Temp	x								x		x
Return Air Temp	x								x		x
Supply Air Static Pressure	x								x	x	x
Supply Air Temp	x								x		x
Heat Wheel VFD Speed	x								x		x
Mixed Air Dampers	x								x		x
Supply Fan VFD Speed	x								x		x

Point Name	Hardware Points					Software Points					Show On Graphic
	AI	AO	BI	BO	AV	BV	Loop	Sched	Trend	Alarm	
Freezeestat			x						x	x	x
Heat Wheel Status			x						x		x
Heat Wheel VFD Fault			x						x	x	x
High Static Shutdown			x						x	x	x
Supply Air Smoke Detector			x						x	x	x
Supply Fan Status			x						x		x
Supply Fan VFD Fault			x						x		x
Cooling Stage 1				x					x		x
Heat Wheel Bypass Dampers				x					x		x
Heat Wheel Start/Stop				x					x		x
Heating Stage 1				x					x		x
Heating Stage 2				x					x		x
Preheating Stage 1				x					x		x
Preheating Stage 2				x					x		x
Supply Fan Start/Stop				x					x		x
Economizer Mixed Air Temp Setpoint					x				x		x
Preheating Mixed Air Temp Setpoint					x				x		x
Supply Air Static Pressure Setpoint					x				x		x
Supply Air Temp Setpoint					x				x		x
Schedule							x				
Compressor Runtime Exceeded										x	
Heat Wheel in Hand										x	
Heat Wheel Rotation Failure										x	
Heat Wheel Runtime Exceeded										x	
High Mixed Air Temp										x	
High Return Air Temp										x	
High Supply Air Static Pressure										x	
High Supply Air Temp										x	
High Supply Air Temp										x	
Low Mixed Air Temp										x	
Low Return Air Temp										x	
Low Supply Air Static Pressure										x	
Low Supply Air Temp										x	
Low Supply Air Temp										x	
Supply Fan Failure										x	



1 ROOFTOP UNIT (GAS HEAT AND DX COOLING) CONTROL SCHEMATIC (RTU-2)

SCALE: NONE

ROOF TOP UNIT – RTU
RUN CONDITIONS – SCHEDULED: THE UNIT SHALL RUN BASED UPON AN OPERATOR ADJUSTABLE SCHEDULE.
FREEZE PROTECTION: THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A FREEZESTAT STATUS.
HIGH STATIC SHUTDOWN: THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING AN HIGH STATIC SHUTDOWN SIGNAL.
SUPPLY AIR SMOKE DETECTION: THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A SUPPLY AIR SMOKE DETECTOR STATUS.
SUPPLY FAN: THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME. ALARMS SHALL BE PROVIDED AS FOLLOWS:
*SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
*SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
*SUPPLY FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
SUPPLY AIR DUCT STATIC PRESSURE CONTROL: THE CONTROLLER SHALL MEASURE DUCT STATIC PRESSURE AND MODULATE THE SUPPLY FAN VFD SPEED TO MAINTAIN A DUCT STATIC PRESSURE SETPOINT. THE SPEED SHALL NOT DROP BELOW 30% (ADJ.). THE STATIC PRESSURE SETPOINT SHALL BE RESET BASED UPON THE POSITION OF THE ZONE DAMPERS, WITH A GOAL OF REDUCING THE STATIC PRESSURE UNTIL AT LEAST ONE ZONE DAMPER IS NEARLY WIDE OPEN.
*THE INITIAL DUCT STATIC PRESSURE SETPOINT SHALL BE 1.5IN H2O (ADJ.).
*IF NO ZONE DAMPER IS NEARLY WIDE OPEN, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 1.3IN H2O (ADJ.) .

*AS ONE OR MORE DAMPERS NEARS THE WIDE OPEN POSITION, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 1.8IN H2O (ADJ.).
ALARMS SHALL BE PROVIDED AS FOLLOWS:
*HIGH SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 25% (ADJ.) GREATER THAN SETPOINT.
*LOW SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 25% (ADJ.) LESS THAN SETPOINT.
*SUPPLY FAN VFD FAULT.
HEAT RECOVERY WHEEL – VARIABLE SPEED: THE CONTROLLER SHALL MODULATE THE HEAT RECOVERY WHEEL FOR ENERGY RECOVERY AS FOLLOWS:
COOLING RECOVERY MODE: THE CONTROLLER SHALL MEASURE THE HEAT WHEEL DISCHARGE AIR TEMPERATURE AND MODULATE THE HEAT WHEEL SPEED TO MAINTAIN A SETPOINT 2°F (ADJ.) LESS THAN THE UNIT SUPPLY AIR TEMPERATURE SETPOINT. THE HEAT WHEEL SHALL RUN FOR COOL RECOVERY WHENEVER:
*THE UNIT RETURN AIR TEMPERATURE IS 5°F (ADJ.) OR MORE BELOW THE OUTSIDE AIR TEMPERATURE.
*AND THE UNIT IS IN A COOLING MODE.
*AND THE ECONOMIZER (IF PRESENT) IS OFF.
*AND THE SUPPLY FAN IS ON.
HEATING RECOVERY MODE: THE CONTROLLER SHALL MEASURE THE HEAT WHEEL DISCHARGE AIR TEMPERATURE AND MODULATE THE HEAT WHEEL SPEED TO MAINTAIN A SETPOINT 2°F (ADJ.) GREATER THAN THE UNIT SUPPLY AIR TEMPERATURE SETPOINT. THE HEAT WHEEL SHALL RUN FOR HEAT RECOVERY WHENEVER:
*THE UNIT RETURN AIR TEMPERATURE IS 5°F (ADJ.) OR MORE ABOVE THE OUTSIDE AIR TEMPERATURE.

*AND THE UNIT IS IN A HEATING MODE.
*AND THE ECONOMIZER (IF PRESENT) IS OFF.
*AND THE SUPPLY FAN IS ON.
PERIODIC SELF-CLEANING: THE HEAT WHEEL SHALL RUN AT 5% SPEED (ADJ.) EVERY 4HR (ADJ.) THE UNIT RUNS.
FROST PROTECTION: THE HEAT WHEEL SHALL RUN AT 5% SPEED (ADJ.) WHENEVER:
*OUTSIDE AIR TEMPERATURE DROPS BELOW 15°F (ADJ.).
*OR THE EXHAUST AIR TEMPERATURE DROPS BELOW 20°F (ADJ.).
THE HEAT WHEEL BYPASS DAMPERS WILL OPEN WHENEVER THE HEAT WHEEL IS DISABLED.
ALARMS SHALL BE PROVIDED AS FOLLOWS:
*HEAT WHEEL ROTATION FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
*HEAT WHEEL IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
*HEAT WHEEL RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
*HEAT WHEEL VFD FAULT.
GAS PREHEATING STAGES: THE CONTROLLER SHALL MEASURE THE MIXED AIR TEMPERATURE AND STAGE THE PREHEATING TO MAINTAIN ITS SETPOINT 5°F (ADJ.) LESS THAN THE SUPPLY AIR TEMPERATURE SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

THE PREHEATING SHALL BE ENABLED WHENEVER:
*OUTSIDE AIR TEMPERATURE IS LESS THAN 60°F (ADJ.).
*AND THE ECONOMIZER (IF PRESENT) IS DISABLED.
*AND THE SUPPLY FAN STATUS IS ON.
THE PREHEATING STAGE SHALL RUN FOR FREEZE PROTECTION WHENEVER:
*MIXED AIR TEMPERATURE DROPS FROM 40°F TO 35°F (ADJ.).
*AND THE SUPPLY FAN STATUS IS ON.
SUPPLY AIR TEMPERATURE SETPOINT – OPTIMIZED: THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND SHALL MAINTAIN A SUPPLY AIR TEMPERATURE SETPOINT RESET BASED ON ZONE COOLING AND HEATING REQUIREMENTS. THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET FOR COOLING BASED ON ZONE COOLING REQUIREMENTS AS FOLLOWS:
*THE INITIAL SUPPLY AIR TEMPERATURE SETPOINT SHALL BE 55°F (ADJ.).
*AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 53°F (ADJ.).
*AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 72°F (ADJ.).
IF MORE ZONES NEED HEATING THAN COOLING, THEN THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET FOR HEATING AS FOLLOWS:
*THE INITIAL SUPPLY AIR TEMPERATURE SETPOINT SHALL BE 82°F (ADJ.).
*AS HEATING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 85°F (ADJ.).
*AS HEATING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 72°F (ADJ.).


COOLING STAGE: THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND STAGE THE COOLING TO MAINTAIN ITS COOLING SETPOINT. TO PREVENT SHORT CYCLING, THE STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME. THE COOLING SHALL BE ENABLED WHENEVER:
*OUTSIDE AIR TEMPERATURE IS GREATER THAN 60°F (ADJ.).
*AND THE ECONOMIZER (IF PRESENT) IS DISABLED OR FULLY OPEN.
*AND THE SUPPLY FAN STATUS IS ON.
*AND THE HEATING (IF PRESENT) IS NOT ACTIVE.
ALARMS SHALL BE PROVIDED AS FOLLOWS:
*HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS 5°F (ADJ.) GREATER THAN SETPOINT.
GAS HEATING STAGES: THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND STAGE THE HEATING TO MAINTAIN ITS HEATING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME. THE HEATING SHALL BE ENABLED WHENEVER:
*OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
*AND THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE RETURN AIR TEMPERATURE.
*AND THE SUPPLY FAN STATUS IS ON.
THE ECONOMIZER SHALL CLOSE WHENEVER:
*MIXED AIR TEMPERATURE DROPS FROM 40°F TO 35°F (ADJ.).
*OR THE FREEZESTAT (IF PRESENT) IS ON.
*OR ON LOSS OF SUPPLY FAN STATUS.
THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN WHEN THE UNIT IS OFF. IF OPTIMAL START UP IS AVAILABLE THE MIXED AIR DAMPER SHALL OPERATE AS DESCRIBED IN THE OCCUPIED MODE EXCEPT THAT THE OUTSIDE AIR DAMPER SHALL MODULATE TO FULLY CLOSED.
MINIMUM OUTSIDE AIR VENTILATION – FIXED PERCENTAGE: THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE POSITION DURING BUILDING OCCUPIED HOURS AND BE CLOSED DURING UNOCCUPIED HOURS.
MIXED AIR TEMPERATURE: THE CONTROLLER SHALL MONITOR THE MIXED AIR TEMPERATURE AND USE AS REQUIRED FOR ECONOMIZER CONTROL (IF PRESENT) OR PREHEATING CONTROL (IF PRESENT).

ALARMS SHALL BE PROVIDED AS FOLLOWS:
*LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS 5°F (ADJ.) LESS THAN SETPOINT.
*LOW MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).
RETURN AIR TEMPERATURE: THE CONTROLLER SHALL MONITOR THE RETURN AIR TEMPERATURE AND USE AS REQUIRED FOR SETPOINT CONTROL OR ECONOMIZER CONTROL (IF PRESENT).
ALARMS SHALL BE PROVIDED AS FOLLOWS:
*HIGH RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90°F (ADJ.).
*LOW RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).
SUPPLY AIR TEMPERATURE: THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE.
ALARMS SHALL BE PROVIDED AS FOLLOWS:
*HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.).
*LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).

ALARMS SHALL BE PROVIDED AS FOLLOWS:
*HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 90°F (ADJ.).
*LOW MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).
RETURN AIR TEMPERATURE: THE CONTROLLER SHALL MONITOR THE RETURN AIR TEMPERATURE AND USE AS REQUIRED FOR SETPOINT CONTROL OR ECONOMIZER CONTROL (IF PRESENT).
ALARMS SHALL BE PROVIDED AS FOLLOWS:
*HIGH RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90°F (ADJ.).
*LOW RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).
SUPPLY AIR TEMPERATURE: THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE.
ALARMS SHALL BE PROVIDED AS FOLLOWS:
*HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.).
*LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).

I, E. A. WILKINS, OF THE CITY AND COUNTY OF ALBANY, STATE OF NEW YORK, DO HEREBY CERTIFY THAT I AM A LICENSED PROFESSIONAL ARCHITECT/ENGINEER, AND THAT I HAVE PREPARED THE DESIGN AND CONSTRUCTION DOCUMENTS FOR THE PROJECT DESCRIBED HEREIN, AND THAT I AM A MEMBER OF THE PROFESSIONAL ENGINEERING SOCIETY OF THE STATE OF NEW YORK.

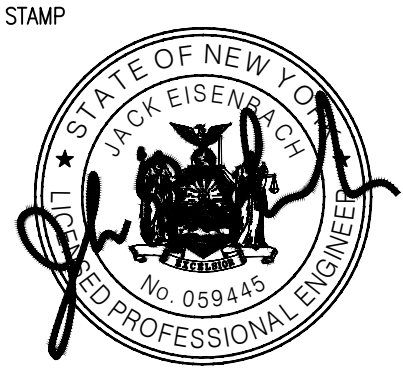
ENGINEER:



Eisenbach & Rohrer Engineering, P.C.
200 Green Street • Albany, NY 12242
Ph: 518-735-1818 Fax: 518-735-1865
www.e-r.com

CONSULTANT(S):

STAMP



GREEN CHIMNEYS
CHILDREN SERVICES
HVAC UPGRADE

400 Doansburg Road, Brewster, NY

E&R PROJECT NO.

50-19-01

REVISION

DATE

BY

DATE

12.23.2020

DRAWN BY

JMJ

CHECKED BY

JJE

SHEET SIZE

30x42

SCALE

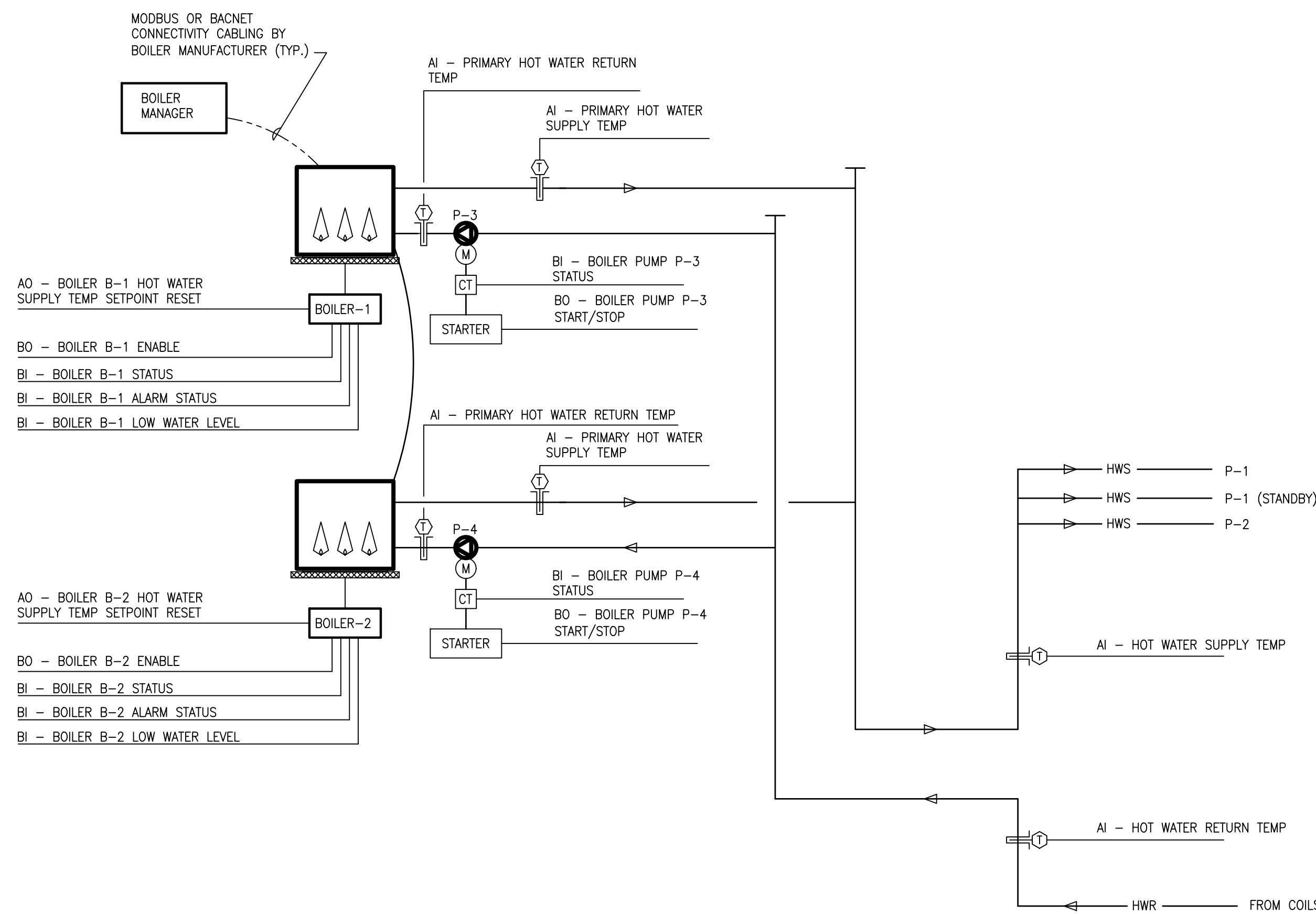
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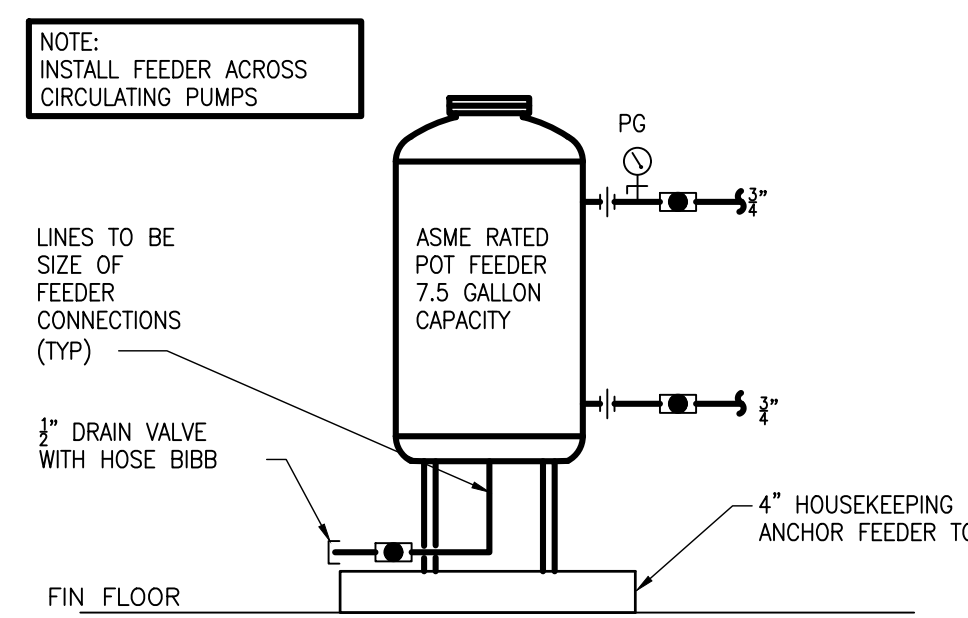
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SCHEMATICS

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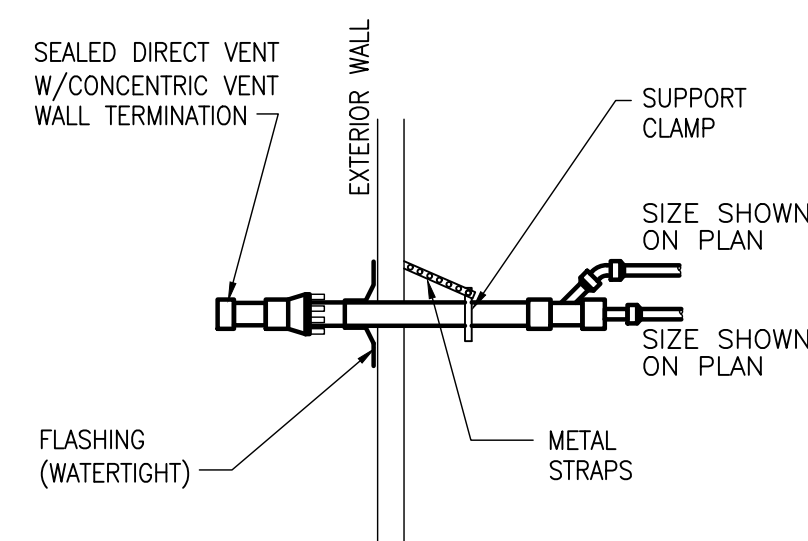
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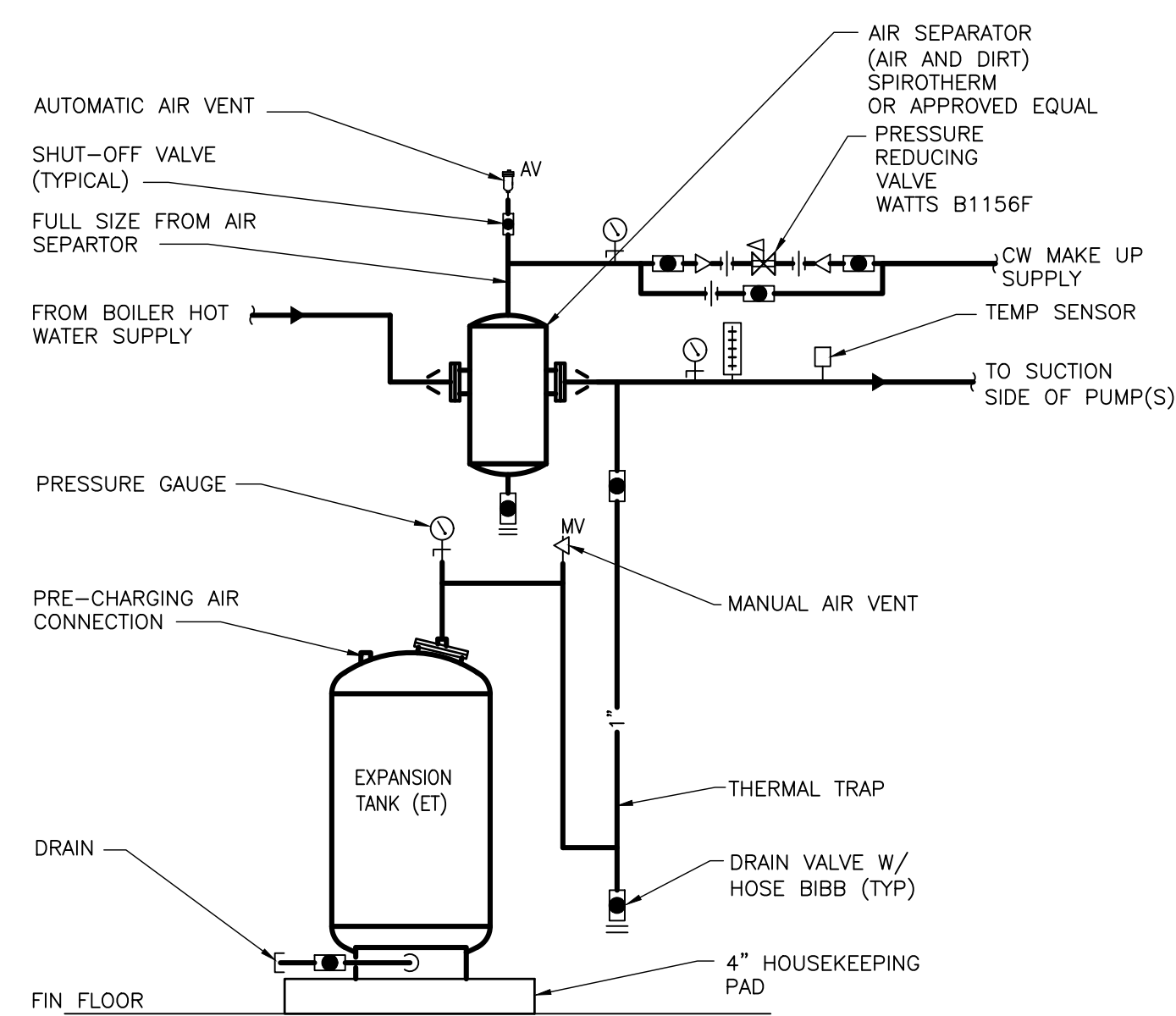
1 TYPICAL BOILER AND PRIMARY PUMP CONTROL SCHEMATIC
SCALE: NONE



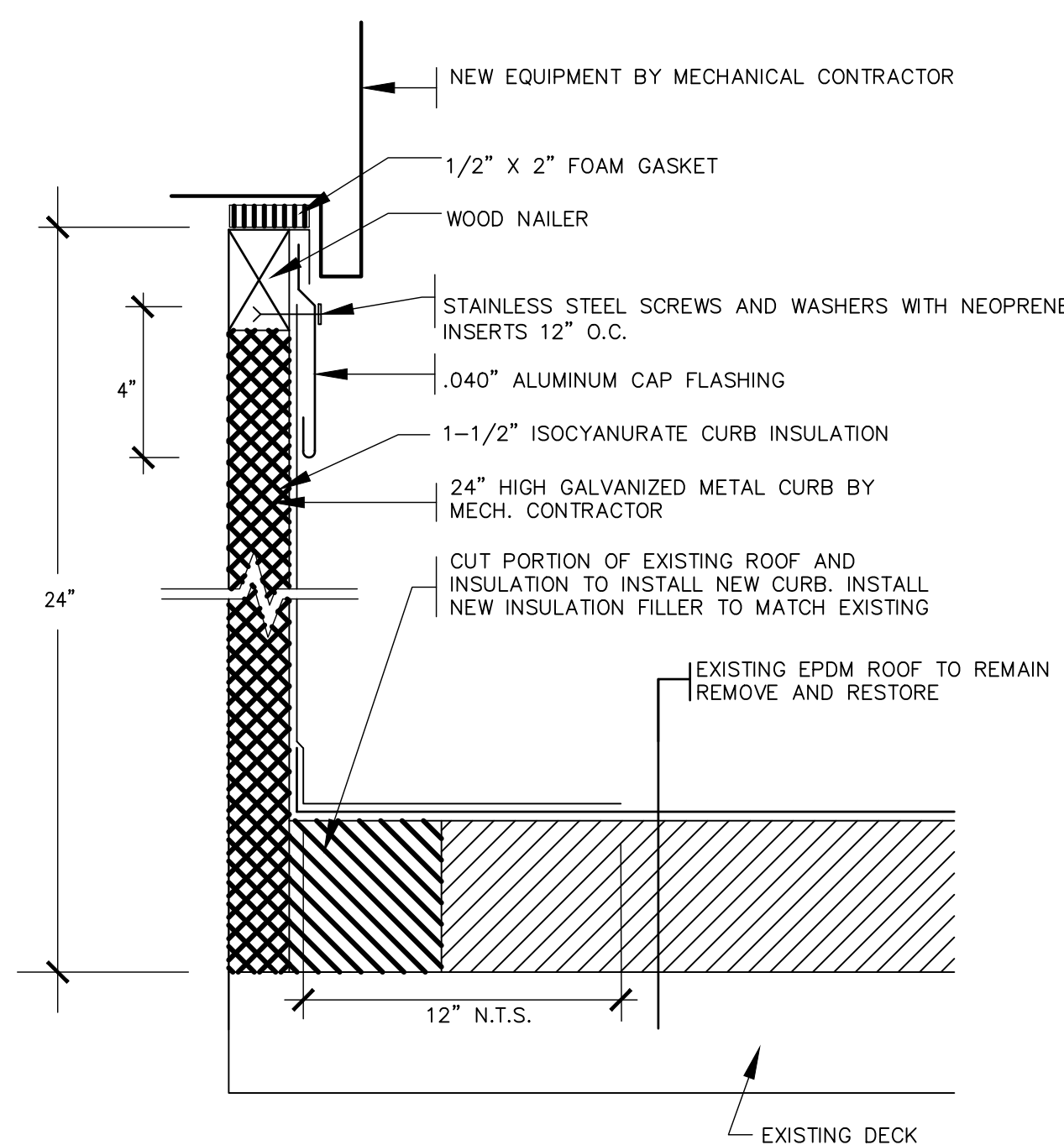
2 CHEMICAL FEEDER DETAIL
SCALE: NONE



3 VENT THRU WALL DETAIL
SCALE: NONE



3 AIR SEPARATOR/EXPANSION TANK PIPING DETAIL
SCALE: NONE



4 TYPICAL HVAC CURB (EXISTING EPDM ROOF)
SCALE: NONE

SEQUENCE OF OPERATION – BOILER MANAGER

* NOTE: PROVIDED BY BOILER MANUFACTURER – CONTROLLER OR AS APPROVED.

HOT WATER SYSTEM – BOILER MANAGER – RUN CONDITIONS:
THE HOT WATER SYSTEM SHALL BE ENABLED TO RUN WHENEVER THE OUTSIDE AIR TEMPERATURE IS LESS THAN 65 DEG.F (ADJ.).

TO PREVENT SHORT CYCLING, THE BOILER MANAGER SHALL RUN FOR AND BE OFF FOR MINIMUM ADJUSTABLE TIMES (BOTH USER DEFINABLE).

EACH BOILER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

BOILER STAGING – TWO EQUAL SIZED HOT WATER BOILERS RUNNING IN PARALLEL:

STAGING AND SEQUENCING OF EACH BOILER "TRAIN", SEQUENCE OF OPERATION FOR EACH INDIVIDUAL BOILER AND ITS ASSOCIATED EQUIPMENT (SUCH AS PUMPS) ARE NOT INCLUDED.

THE CONTROLLER SHALL STAGE THE BOILERS ON IN SEQUENCE TO MEET RISING HEATING DEMAND AND DROPPING MAIN HOT WATER SUPPLY TEMPERATURE:

MAIN HOT WATER SUPPLY TEMPERATURE IS MEASURED AT A POINT LEAVING THE BOILER PLANT AND ENTERING THE FACILITY. THIS POINT SHALL BE DOWNSTREAM AND COMMON TO ALL BOILERS.

THE FOLLOWING SETPOINTS ARE RECOMMENDED VALUES. ALL SETPOINTS SHALL BE FIELD ADJUSTED DURING THE BALANCING PERIOD TO MEET THE REQUIREMENTS OF ACTUAL FIELD CONDITIONS.

LEAD BOILER:
SHALL RUN ANYTIME THE BOILER MANAGER IS ENABLED. ADDITIONAL BOILERS SHALL STAGE ON AS FOLLOWS. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

SECOND BOILER:
STAGE ON IF HOT WATER SUPPLY TEMPERATURE DROPS BELOW CURRENT SETPOINT BASED ON OUTDOOR AIR TEMPERATURE AND HW RESET SCHEDULE.

STAGE OFF HOT WATER SUPPLY TEMPERATURE RISES ABOVE SETPOINT BY 30 DEG.F

HOT WATER SUPPLY TEMPERATURE SETPOINT RESET:

THE HOT WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET BASED ON OUTSIDE AIR TEMPERATURE.

HOT WATER TEMPERATURE SHALL RESET DOWNWARDS AS OUTDOOR AIR TEMPERATURE RISES: FROM 180 DEG.F. (ADJ.) HOT WATER AT 5 DEG.F. (ADJ.) O.A. TEMPERATURE TO 95 DEG.F. (ADJ.) HOT WATER TEMPERATURE AT 68 DEG.F. (ADJ.) O.A. TEMPERATURE.

THE BOILER STAGING ORDER SHALL BE USER DEFINABLE. THE DESIGNATED LEAD BOILER (USER DEFINABLE) SHALL ROTATE UPON ONE OF THE FOLLOWING CONDITIONS (USER SELECTABLE):

MANUALLY THROUGH A SOFTWARE SWITCH
IF BOILER RUNTIME (ADJ.) IS EXCEEDED
WEEKLY
MONTHLY

EACH BOILER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS. ON FAILURE OF ANY BOILER, THE FAILED BOILER SHALL BE "REMOVED" FROM OPERATION AND THE NEXT AVAILABLE PIECE OF EQUIPMENT AS DEFINED BY THE USER SHALL BE STAGED ON IN ITS PLACE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

BOILER 1 FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
BOILER 2 FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.

SEQUENCE OF OPERATION – BOILER(S)

BOILER – RUN CONDITIONS:
THE BOILER SHALL BE ENABLED TO RUN WHENEVER IT IS COMMANDED TO BE ENABLED BY THE BOILER MANAGER PROGRAM.

THE BOILER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS. BOILER SAFETIES:

THE FOLLOWING SAFETIES SHALL BE MONITORED:

BOILER ALARM.
LOW WATER LEVEL.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

BOILER ALARM.
LOW WATER LEVEL ALARM.

BOILER PUMPS (P-1, P-2):

THE BOILER PUMP SHALL RUN ANYTIME THE BOILER IS CALLED TO RUN AND SHALL HAVE A USER DEFINABLE (ADJ.) DELAY ON STOP.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

BOILER PUMP FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
BOILER PUMP RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
BOILER PUMP RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.

BOILER ENABLE:

THE BOILER SHALL BE ENABLED WHEN THE BOILER MANAGER COMMANDS THE SYSTEM ON. THE BOILERS SHALL BE ENABLED AFTER COMBUSTION AIR DAMPERS AND BOILER PUMPS STATUS IS PROVEN "ON" AND SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

COMBUSTION AIR DAMPER TO OPEN IN 50% INCREMENTS AS EACH BOILER STAGES ON:
1 BOILER ON DAMPER 50% OPEN
2 BOILERS ON DAMPER 100% OPEN

ALARMS SHALL BE PROVIDED AS FOLLOWS:

COMBUSTION AIR DAMPER FAILURE: COMMANDED OPEN STATUS IS CLOSED.
BOILER PUMP FAILURE: COMMANDED ON STATUS IS OFF.
BOILER FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
BOILER RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
BOILER RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.

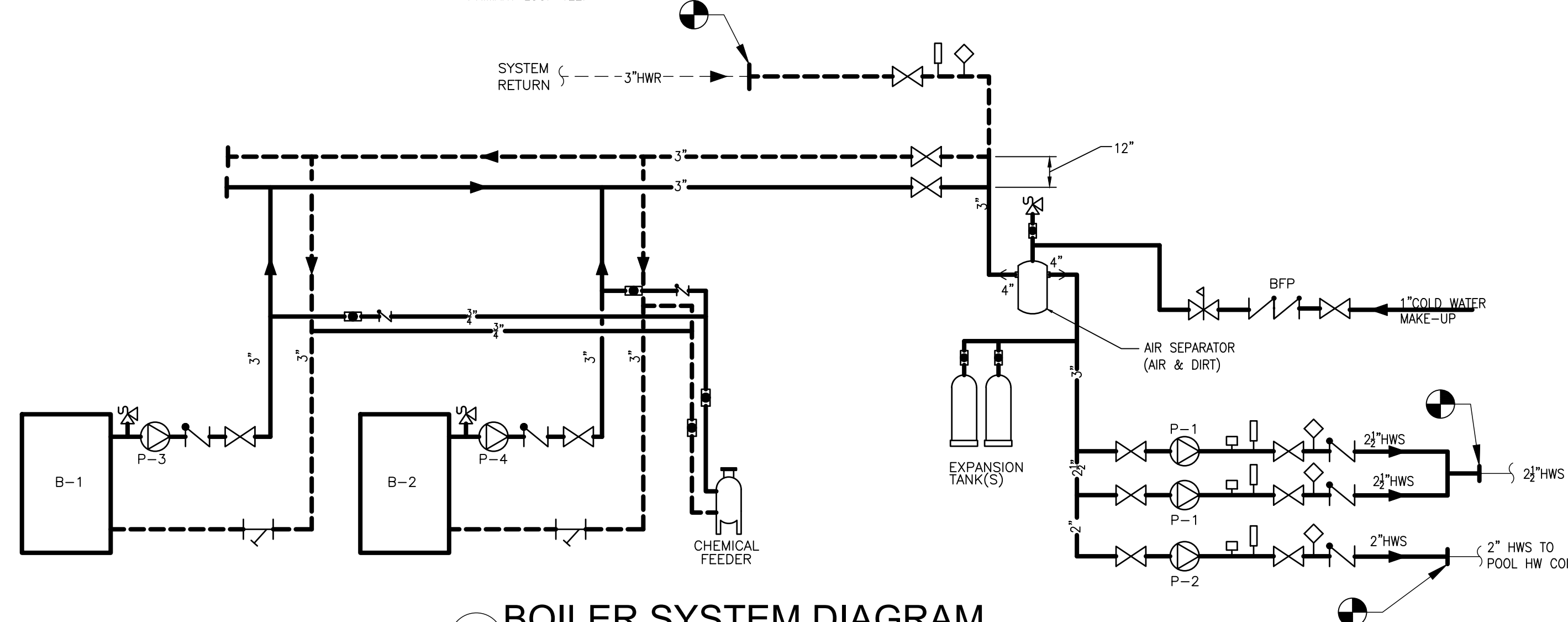
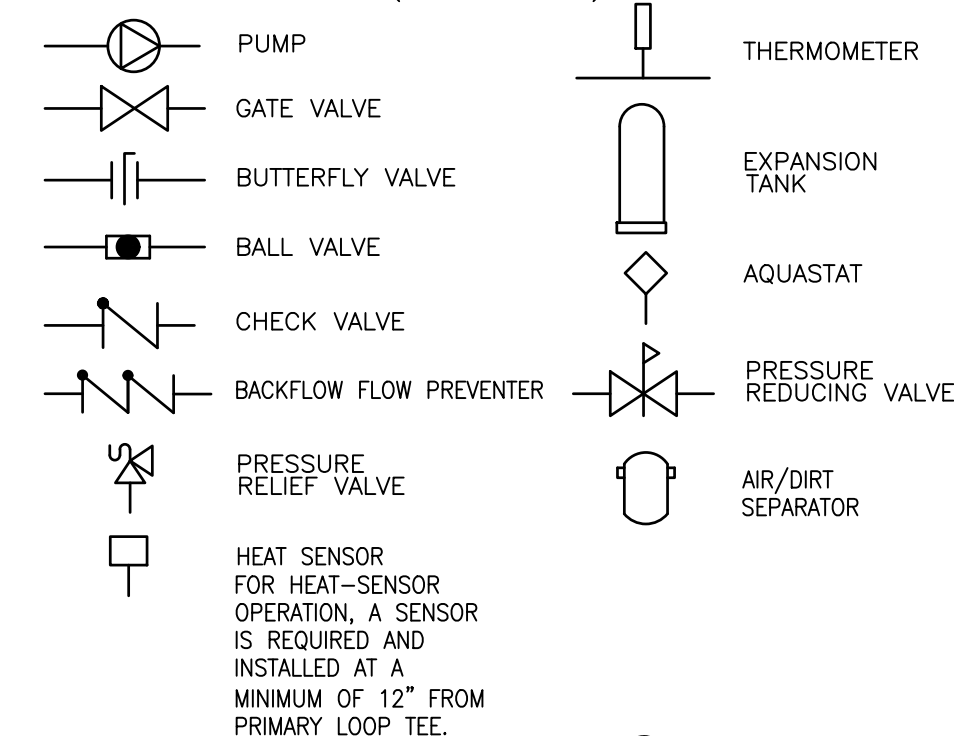
HOT WATER SUPPLY TEMPERATURE SETPOINT RESET:

THE HOT WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET AS COMMANDED BY THE BOILER MANAGER.

THE FOLLOWING HOT WATER TEMPERATURES SHALL BE MONITORED:

HOT WATER SUPPLY.
HOT WATER RETURN.
ALARMS SHALL BE PROVIDED AS FOLLOWS:
HIGH HOT WATER SUPPLY TEMP: IF GREATER THAN 200 DEG. F (ADJ.).
LOW HOT WATER SUPPLY TEMP: IF LESS THAN 100 DEG. F (ADJ.).

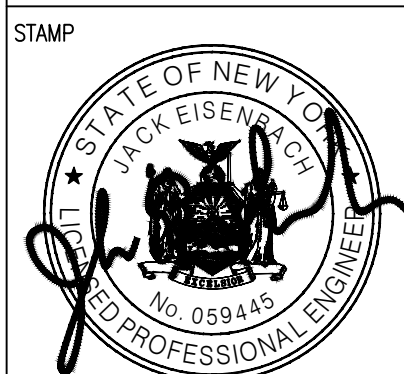
LEGEND (DETAIL 4 ONLY)



5 BOILER SYSTEM DIAGRAM
SCALE: NONE

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FILE PATH: N:\1 - PROJECT DIRECTORIES\1- E & R Projects\500-Green Chimneys Farm & Gym HVAC Upgrades\500-19-01.msd00.dwg

Farm & Wildlife 50-19-01 Green Chimneys Pool & Gym HVAC Upgrade	E&R PROJECT NO.		50-19-01
REVISION		DATE	BY
DATE		12.23.2020	
DRAWN BY		JMJ	
CHECKED BY		JJE	
SHEET SIZE		30x42	
SCALE		AS NOTED	

SHEET NO.
M-502

SYMBOLS LIST		
GENERAL SYMBOLS:		
	KEYED NOTE	
	HEAVY LINE-WEIGHT INDICATES TO PROVIDE DEVICES/EQUIPMENT AS NEW	
	HEAVY LINE-WEIGHT WITH HASH MARKS INDICATES DEVICES/EQUIPMENT TO BE REMOVED	
	INDICATES CONNECTION TO EXISTING	
	INDICATES POINT OF DISCONNECT	
	'(E)' NEXT TO LIGHT LINE-WEIGHT INDICATES EXISTING DEVICES/EQUIPMENT TO REMAIN	
	'(ER)' NEXT TO LIGHT LINE-WEIGHT INDICATES EXISTING DEVICES/EQUIPMENT TO BE REMOVED AND RELOCATED. REFER TO DEFINITIONS FOR INFORMATION	
	'(RE)' NEXT TO LIGHT LINE-WEIGHT INDICATES EXISTING DEVICES/EQUIPMENT TO BE REINSTALLED. REFER TO DEFINITIONS FOR INFORMATION	
	REMOVALS (EQUIPMENT, CONDUIT, WIRING, ETC.)	
	EXISTING TO REMAIN	
	NEW WORK	
TELEPHONE/DATA SYMBOLS:		
	DATA RACK	
	COMMUNICATIONS OUTLET JACKS	
	INDICATES NUMBER OF TELEPHONE JACKS	
	WAP - WIRELESS ACCESS POINT	
	INDICATES PRESENTATION STATION OUTLET	
	INDICATES PROJECTOR STATION OUTLET	
ONE-LINE SYMBOLS:		
	CIRCUIT BREAKER	
	FUSE	
	FUSED DISCONNECT SWITCH	
	GROUND	
	PANELBOARD	
FIRE ALARM SYMBOLS:		
	AUDIO/VISUAL SIGNALING DEVICE. NUMBER DENOTES CANDELA RATING.	
	VISUAL SIGNALING DEVICE. NUMBER DENOTES CANDELA RATING.	
	PULL STATION	
	SMOKE DETECTOR. R SUBSCRIPT: PROVIDE ACCESSORY EQUIPMENT/WIRING/PROGRAMMING FOR ELEVATOR RECALL AND SHUNT TRIP.	
	HEAT DETECTOR	
	CONTROL MODULE	
	MONITOR MODULE	
	DUCT SMOKE DETECTOR	
	REMOTE TEST STATION	
	MAGNETIC DOOR HOLDER	
	TAMPER SWITCH	
	FIRE DOOR RELEASE	
	FLOW SWITCH	
	FAN SHUT-DOWN	
	FIRE ALARM CONTROL PANEL	
	FIRE ALARM ANNUNCIATOR PANEL	
	CARBON MONOXIDE DETECTOR (INSTALL PER MANUFACTURERS RECOMMEND. AND PER NFPA 720 and 72)	
	CARBON DIOXIDE DETECTOR	
	GAS DETECTOR	
SPECIAL SYSTEMS SYMBOLS:		
	AC SYSTEM CONTROL PANEL	
	AC SYSTEM MASTER CONTROL STATION	
	CARD READER	
	DOOR CONTACT	
	ELECTRIC DOOR STRIKE	
	REQUEST TO EXIT	
	INTERCOM STATION	
	CLOCK (NO DESIGNATION DENOTES CLASSROOM CLOCK).	
	C1 - DENOTES SINGLE FACE HALLWAY CLOCK.	
	C2 - DENOTES DUAL FACE HALLWAY CLOCK.	
	PUBLIC ADDRESS SPEAKER (CEILING)	
	PUBLIC ADDRESS SPEAKER (WALL)	
	PUBLIC ADDRESS HORN SPEAKER (WALL)	
	CEILING MOUNTED CCTV CAMERA	
	WALL MOUNTED CCTV CAMERA	
LIGHTING SYMBOLS:		
(REFER TO LIGHT FIXTURE SCHEDULE)		
	LIGHT SWITCH	
	D - DIMMER SWITCH	
	K - KEYED	
	3 - 3-WAY	
	4 - 4-WAY	
OCCUPANCY SENSOR		
	C# - INDICATES CEILING SENSOR TYPE (REFER TO OCCUPANCY SENSOR SCHEDULE)	
	W# - INDICATES WALL SENSOR TYPE (REFER TO OCCUPANCY SENSOR SCHEDULE)	
	CEILING-MOUNTED EXIT LIGHT. HATCH MARKS INDICATES ILLUMINATED FACE, ARROW INDICATES DIRECTION OF TRAVEL.	
	WALL-MOUNTED EXIT LIGHT. HATCH MARKS INDICATES ILLUMINATED FACE, ARROW INDICATES DIRECTION OF TRAVEL.	
	DUAL HEAD WALL-MOUNTED EMERGENCY BATTERY PACK LUMINAIRE.	
	SINGLE HEAD WALL-MOUNTED EMERGENCY BATTERY PACK LUMINAIRE.	
	2'x4' CEILING MOUNTED LIGHT FIXTURE, F# INDICATES TYPE.	
	2'x2' CEILING MOUNTED LIGHT FIXTURE, F# INDICATES TYPE.	
	1'x4' CEILING MOUNTED LIGHT FIXTURE, F# INDICATES TYPE.	
	CEILING MOUNTED DOWNLIGHT FIXTURE, F# INDICATES TYPE.	
	4' WALL MOUNTED LIGHT FIXTURE, F# INDICATES TYPE.	
	WALL MOUNTED FIXTURE, F# INDICATES TYPE.	

GENERAL DEMOLITION NOTES:

- DEMOLITION DRAWINGS ARE BASED ON FIELD OBSERVATION. REPORT ANY CONFLICTS TO THE ENGINEER BEFORE DISTURBING EXISTING EQUIPMENT.
- BEGINNING OF DEMOLITION MEANS THE CONTRACTOR ACCEPTS ALL EXISTING CONDITIONS.
- VERIFY SCOPE OF WORK: CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO SUBMITTING A BID TO DETERMINE THE SCOPE OF THE WORK, AND TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS THAT WILL AFFECT THEIR WORK AND, THEREFORE, THEIR BID.
- UNLESS NOTED OTHERWISE, EXISTING ELECTRICAL EQUIPMENT SHOWN ON THESE PLANS ARE A PART OF CONTRACT. TO MAINTAIN DRAWING CLARITY NOT ALL EXISTING ELECTRICAL EQUIPMENT HAS BEEN SHOWN. FIELD VERIFY EXISTING CONDITIONS AND NOTIFY ARCHITECT/ENGINEER OF ANY CONFLICTS.
- UNLESS NOTED OTHERWISE, REMOVE ALL ELECTRICAL ITEMS SHOWN ON THESE PLANS AS INDICATED BY CROSS HATCHED LINES AND/OR KEYED NOTES.
- UNLESS NOTED OTHERWISE, DEMOLITION OF ELECTRICAL EQUIPMENT/DEVICES INCLUDES REMOVAL OF CIRCUITRY BACK TO ASSOCIATED SOURCE/PANEL. THIS INCLUDES REMOVAL OF THE DEVICE, WIRING, CONDUIT, BOXES, CONTROL DEVICES, ETC.
- WHERE POSSIBLE, EXISTING CONDUITS/RACEWAYS (ASSOCIATED WITH REMOVED EQUIPMENT AND WIRING) MAY BE RE-USED FOR NEW CIRCUITING. EXISTING CONDUITS/RACEWAYS MUST BE IN GOOD CONDITION, AND IN COMPLIANCE WITH NEC/SPECIFICATION REQUIREMENTS. NOTIFY ENGINEER PRIOR TO REUSING.
- EXISTING CIRCUIT BREAKERS ASSOCIATED WITH ELECTRICAL EQUIPMENT SCHEDULED FOR DEMOLITION SHALL REMAIN FOR SPARES UNLESS REMOVAL IS REQUIRED TO MAKE ADDITIONAL SPACE (IN EXISTING PANELBOARDS) FOR NEW CIRCUIT BREAKERS.
- MAINTAIN THE ELECTRICAL INTEGRITY OF ALL EXISTING BRANCH CIRCUITS INTERRUPTED BY REMOVAL WORK. PROVIDE ALL WIRING, CONDUIT, AND HARDWARE REQUIRED TO MAINTAIN CONTINUITY OF ELECTRICAL EQUIPMENT REMAINING ON EXISTING BRANCH CIRCUITS NOT BEING COMPLETELY REMOVED OR OUTSIDE WORK THE WORK AREA.
- UNLESS NOTED OTHERWISE, REMOVE EXISTING ELECTRICAL DEVICES, AND ASSOCIATED CIRCUITRY, LOCATED ON OR IN WALLS SCHEDULED FOR REMOVAL. REFER TO ARCHITECTURAL DRAWINGS FOR DEMOLITION COORDINATION.
- UNLESS NOTED OTHERWISE, REMOVE EXISTING ELECTRICAL DEVICES, AND ASSOCIATED CIRCUITRY, LOCATED ON OR IN CEILINGS SCHEDULED FOR REMOVAL TO MAINTAIN DRAWING CLARITY, EXISTING DEVICES SCHEDULED FOR DEMOLITION HAVE NOT BEEN IDENTIFIED ON THIS DRAWING. REFER TO ARCHITECTURAL DRAWINGS FOR DEMOLITION COORDINATION.
- WHERE REMOVALS OCCUR ON SERVICES THAT ARE TO REMAIN IN OPERATION, CAP OR OTHERWISE TERMINATE THE REMAINING SERVICES BENEATH FINISHED SURFACES.
- ALL CONDUITS STUBBED THRU FLOOR SERVING ITEMS TO BE REMOVED, AND NOT SHOWN OR REQUIRED TO BE REUSED, SHALL BE CUT OFF FLUSH, SLAB LEVEL WITH CONCRETE.
- PORTIONS OF FEEDERS RISERS WHICH REQUIRE REMOVAL DUE TO DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ENERGIZED, SHALL BE CUT AT ACCESSIBLE LOCATIONS, REROUTED AND RECONNECTED. EXTEND EXISTING FEEDERS AS REQUIRED. MATCH EXISTING FEEDERS IN CONDUCTOR SIZE (AMPACITY RATING), RACEWAY SIZE, ETC.
- CAREFULLY REMOVE, PROTECT AND STORE ALL EQUIPMENT TO BE REUSED IN A SAFE PLACE UNTIL READY FOR REINSTALLATION. CLEAN MATERIALS BEFORE REINSTALLATION AND ENSURE EQUIPMENT IS STILL FULLY OPERATIONAL.
- THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OR RELOCATION OF ITEMS, NOT SHOWN ON THESE DRAWINGS TO ACCOMMODATE THE RENOVATIONS. CONTRACTOR SHALL INCLUDE, IN BASE BID, AN ALLOWANCE FOR UNFORESEEN CONDITIONS WHEN CONCEALED WORK IS EXPOSED. CLAIMS FOR ADDITIONAL DEMOLITION WORK WILL NOT BE ACCEPTED EXCEPT FOR CERTAIN CASES CONSIDERED JUSTIFIABLE BY THE ARCHITECT/ENGINEER.

FIRE ALARM NOTES:

- CONTRACTOR SHALL VERIFY AND COORDINATE WITH THE BUILDING FIRE ALARM MAINTENANCE VENDOR FOR TYPE OF FIRE ALARM DEVICES TO BE USED.
- CONTRACTOR SHALL BE RESPONSIBLE TO RETAIN AND COORDINATE THE BUILDING FIRE ALARM MAINTENANCE VENDOR FOR PROGRAMMING AND FINAL CONNECTIONS. CONTRACTOR SHALL INCLUDE PROGRAMMING AND FINAL CONNECTION COSTS IN THEIR BID.
- FIRE ALARM WIRING DIAGRAMS SHOWN ARE GENERAL ARRANGEMENTS ONLY. OBTAINED PRIOR TO THE COMMENCEMENT OF THE WORK. ALL PERMIT COSTS AND INSPECTION FEES SHALL BE INCLUDED AS PART OF THIS CONTRACT.
- PERMITS AND APPROVALS NECESSARY FOR INSTALLATION OF WORK ALL BE OBTAINED PRIOR TO THE COMMENCEMENT OF THE WORK. ALL PERMIT COSTS AND INSPECTION FEES SHALL BE INCLUDED AS PART OF THIS CONTRACT.
- CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN AND PROTECT FIRE ALARM NOTIFICATION DEVICES, SMOKE DETECTORS AND OTHER FIRE ALARM SAFETY DEVICES IN OPERATION AT ALL TIMES. IF ANY PORTION OF FIRE ALARM SYSTEM IS DISABLED, NOTIFY BUILDING CUSTODIAN IMMEDIATELY.
- IN AREAS WHERE DUST AND DIRT WILL BE AIRBOURNE DURING DEMOLITION AND CONSTRUCTION THE CONTRACTOR SHALL PROVIDE PLASTIC WRAP/COVER SMOKE DETECTORS AND THEN REMOVE ONCE SPACE IS CLEAN. IF A FIRE ALARM DEVICE IS LOCATED ON A WALL OR CEILING TO BE REMOVED, UNLESS OTHERWISE INDICATED THE DEVICE SHALL BE REMOVED AND STORED. ONCE CONSTRUCTION IS COMPLETE THE DEVICE SHALL BE REINSTALLED IN IT'S ORIGINAL LOCATION OR AS CLOSE TO ITS ORIGINAL LOCATION AS FEASIBLE. REUSE EXISTING WIRING IF POSSIBLE, PROVIDE NEW WIRING IF NECESSARY.
- UNLESS DIRECTED OTHERWISE BY FIRE ALARM SYSTEM MANUFACTURER FIRE ALARM DEVICE WIRING SHALL BE AS FOLLOWS (FOR BIDDING PURPOSES ONLY)
SIGNAL WIRING - #14 AWG TWISTED/SHIELDED
BELL WIRING - #14 AWG TWISTED CABLE
STROBE WIRING - #14 TWISTED CABLE
THE WIRING SHALL HAVE THE FOLLOWING CHARACTERISTICS:
A. A MINIMUM TEMPERATURE RATING 150° C
B. A MINIMUM AVERAGE INSULATION THICKNESS OF 15 MILS
C. A MINIMUM AVERAGE JACKET THICKNESS OF 25 MILS
D. THE COLOR OF THE CABLE SHALL BE RED
E. THE CABLE SHALL BE A TYPE FPLP (PLENUM TYPE) WHEN CONDUIT IS USED. TO PURCHASING
F. THE CABLE SHALL BE VISIBLY MARKED EXTERNALLY THAT IT MEETS THE ABOVE REQUIREMENTS AND IS LISTED BY U.L.
CONFIRM WIRING TYPE AND QUANTITY WITH FIRE ALARM SYSTEM MANUFACTURER PRIOR.
- PROVIDE MC FIRE ALARM CABLE WITH RED STRIPE AS MANUFACTURED BY AFC SERIES 1800 WHEN CABLE IS CONCEALED OR ABOVE HUNG CEILING. WHEN FIRE ALARM CABLE IS RUN EXPOSED IN FINISHED REAS, CABLE SHALL RUN IN WIREMOLD V-700. WHEN FIRE ALARM CABLE IS RUN EXPOSED IN UNFINISHED AREAS, PROVIDE PLENUM RATED CABLE IN MIN. 3/4" CONDUIT.
- SHUTDOWN OF HVAC SYSTEM EQUIPMENT (NOT LIMITED TO, ROOF TOP, EXHAUST FANS, ETC.) OF 1000 CFM OR GREATER, SHALL BE PERFORMED VIA A RELAY INTERFACE SYSTEM. SEND SIGNAL TO BUILDING AUTOMATED TEMPERATURE CONTROL (ATC) SYSTEM INDICATING SHUTDOWN HAS OCCURED. EQUIPMENT RESTART SHALL BE BY BUILDING 'ATC' SYSTEM UPON FIRE ALARM RESET TO NORMAL MODE. RESTART OF EQUIPMENT SHALL BE SEQUENTIAL.
- AFTER THE SYSTEM MODIFICATIONS ARE COMPLETE TEST ALL COMPONENTS IN ACCORDANCE WITH SEQUENCE OF OPERATION PRIOR TO FIRE DEPARTMENT INSPECTION.
- A CARBON MONOXIDE DETECTORS SHALL BE PROVIDED IN ALL BOILER ROOMS. ACTIVATION INITIATE A SUPERVISORY SIGNAL AT THE FIRE ALARM CONTROL PANEL AND ANNUNCIATOR PANEL WHEN 70 PPM ARE REACHED WITHIN 60-240 MINUTES OR 150 PPM ARE REACHED WITHIN 10-50 PER UL 2034. (CONNECT TO EXISTING SYSTEM)

GENERAL NEW WORK NOTES:

- UNLESS NOTED AS EXISTING OR PROVIDED BY OTHERS, CONTRACTOR SHALL PROVIDE ALL MATERIALS SHOWN ON DRAWINGS. ALL MATERIALS PROVIDED SHALL BE NEW, UNUSED CONDITION.
- ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE PROVIDED WITH MINIMUM DISRUPTION TO THE BUILDING SYSTEMS AND STAFF. CONTINUOUS OPERATION OF THE BUILDING SYSTEMS, OUTSIDE OF WORK AREA, SHALL BE MAINTAINED THROUGHOUT THE ENTIRE PROJECT. TEMPORARY SHUTDOWN OF SYSTEMS SHALL ONLY BE ALLOWED WITH WRITTEN CONSENT OF OWNER. EXISTING ALARM AND EMERGENCY SYSTEMS SHALL NOT BE DISRUPTED AT ANY TIME DURING THE PROJECT.
- REMOVE & REINSTALL EXISTING CONSTRUCTION (CEILINGS, LIGHTING, ELECTRICAL EQUIPMENT, FIRE ALARM DEVICES, FURNISHINGS, ETC.) AS NECESSARY TO COMPLETE THE REMOVALS & RENOVATION WORK REQUIRED BY THE DRAWINGS & SPECIFICATIONS. REPLACE ANY ITEMS DAMAGED BY OR DUE TO THIS REMOVAL & REINSTALLATION WITH NEW ITEMS TO MATCH EXISTING. (APPLIES TO AREAS WITHIN & OUTSIDE OF THE PROJECT AREA).
- IN AREAS WHERE CEILING IS BEING REMOVED, EXISTING CONDUITS AND CABLING WHICH ARE NOT INDEPENDENTLY SUPPORTED ABOVE THE CEILING SHALL BE INDEPENDENTLY SUPPORTED FROM THE STRUCTURE ABOVE USING SPECIFIC METHODS.
- SURFACE MOUNT ALL WIRING DEVICES, LIGHTING CONTROLS, TELECOMMUNICATION DEVICES, FIRE ALARM DEVICES, ETC. LOCATED ON EXISTING MASONRY WALLS. PROVIDE SURFACE MOUNTED BOXES, RACEWAYS, WIREMOLD, ETC. PER SPECIFICATIONS.
- COVERS ASSOCIATED WITH JUNCTION AND PULL BOXES SHALL BE READILY ACCESSIBLE.
- PROVIDE PULL BOXES WHERE REQUIRED BY CODE AND WHERE NECESSARY FOR CONDUCTOR INSTALLATION. PROVIDE PULL BOXES EVERY 100' FOR ALL EMPTY RACEWAY RUNS. PRIOR TO INSTALLATION OF PULL BOXES, COORDINATE WITH OTHER TRADES.
- PROVIDE SEPARATE RACEWAYS AND BOXES FOR CONDUCTORS OF NORMAL AND EMERGENCY CIRCUITS.
- DO NOT COMBINE MORE THAN THREE PHASE CONDUCTORS, THREE NEUTRAL CONDUCTORS PLUS THREE GROUND CONDUCTORS, IN ANY ONE BRANCH CIRCUIT CONDUIT, UNLESS OTHERWISE INDICATED ON DRAWINGS.
- THE USE OF NON-METALLIC SURFACE RACEWAY OR EXPOSED NON-METALLIC RACEWAY IN ASSEMBLY SPACES AND MEANS OF EGRESS AREAS IS PROHIBITED.
- THE USE OF SHARED NEUTRALS IN LIGHTING AND RECEPTACLE BRANCH CIRCUITS IS PROHIBITED. PROVIDE SEPARATE NEUTRAL AND GROUND FOR EVERY CIRCUIT.
- PROTECT EXISTING SURFACES.
- WALK-THRU WITH OWNER REPRESENTATIVE AND VERIFY ALL ELECTRICAL DEVICE LOCATIONS PRIOR TO INSTALLATION.
- INSTALL ALL CIRCUITRY PARALLEL OR PERPENDICULAR TO WALLS, FLOOR, AND CEILING.
- REFER TO ELECTRICAL EQUIPMENT AND CONTROL SCHEDULE FOR HVAC/PLUMBING EQUIPMENT CIRCUITRY, CONTROLS & ADDITIONAL INFORMATION.
- TO MAINTAIN DRAWING CLARITY, MOTOR CONTROL DEVICES, FOR HVAC/PLUMBING EQUIPMENT, HAVE NOT BEEN SHOWN. REFER TO ELECTRICAL EQUIPMENT & CONTROL SCHEDULE FOR TYPES OF MOTOR CONTROL DEVICES REQUIRED, LOCATIONS WHERE CONTROL DEVICES ARE SCHEDULED FOR INSTALLATION, AND ADDITIONAL INFORMATION.
- COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ELECTRICAL EQUIPMENT/DEVICES WITH ARCHITECTURAL PLANS, ELEVATIONS, FURNITURE LAYOUTS, AND WITH OTHER DIVISIONS PRIOR TO INSTALLATION. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT COST TO OWNER.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL SUPPORT HARDWARE FOR SECURELY FASTENING THE ELECTRICAL CONTROL DEVICES AND ENCLOSURES TO THE BUILDING STRUCTURE. THE REQUIRED HARDWARE INCLUDES, BUT IS NOT LIMITED TO, INTERMEDIATE STEEL ANGLE, UNISTRUCT, FASTENERS, JOISTS CLAMPS, ETC. MOUNT STARTERS, VFD'S, DISCONNECTS, RELAYS, AND OTHER ELECTRICAL CONTROL DEVICES AND ENCLOSURES AT LOCATION(S) INDICATED IN ELECTRIC EQUIPMENT & CONTROL SCHEDULE(S). ALLOW MAINTENANCE ACCESS AND SERVICE SPACE AT EACH LOCATION.
- WHERE NEW CIRCUIT BREAKERS ARE REQUIRED FOR INSTALLATION IN EXISTING ELECTRICAL PANELS, CONTRACTOR SHALL PROVIDE CIRCUIT BREAKERS WHICH ARE COMPATIBLE WITH EXISTING ELECTRICAL PANELS. MATCH FRAME SIZES, KIC RATINGS, ETC.
- UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL PROVIDE COMPLETE, TYPE-WRITTEN, AND UP-TO-DATE PANELBOARD DIRECTORIES FOR ALL PANELBOARDS (NEW AND EXISTING) AFFECTED BY THIS PROJECT. PROVIDE OWNER WITH TWO COPIES OF UPDATED PANELBOARD CIRCUIT BREAKER DIRECTORIES.
- EACH RECEPTACLE, SWITCH AND JUNCTION BOX, PROVIDED, OR ALTERED, UNDER THIS CONTRACT, SHALL BE LABELED WITH THE CORRESPONDING POWER PANEL NAME AND CIRCUIT BREAKER NUMBER. ALL LABELING SHALL BE TYPEWRITTEN USING A LABEL MAKER AND SHALL BE PERMANENTLY AFFIXED TO EACH FACEPLATE. HANDWRITTEN LABELS WILL NOT BE ACCEPTED. PRIOR TO START OF LABELING, MEET WITH OWNER TO DETERMINE LABELING SCHEME TO BE UTILIZED. PROVIDE LABELING TO MEET OWNER REQUIREMENTS.
- ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF SWITCHES, PANELBOARDS, OCCUPANCY SENSORS, CONTROL DEVICES, ETC.. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO OWNER FOR RESOLUTION.
- ELECTRICAL CONTRACTOR TO PROVIDE AN ALLOWANCE OF 6 ADDITIONAL GFI DUPLEX OULETS AND ASSOCIATED CONDUITS, WIRING ETC. IN THEIR BIDS. COORDINATE WITH NEW/OR RELOCATED KITCHEN EQUIPMENT. CIRCUIT TO EXISTING KITCHEN PANEL
- CLEANING DURING ELECTRICAL WORK: CLEAN THE ROOMS AND AREAS OF WORK THAT WILL BE DONE TO MINIMIZE DISTURBANCE IN THE BUILDINGS. WORKERS ARE TO USE PATHWAYS AND FACILITIES AGREED UPON WITH THE DISTRICT DESIGNEE IN WRITING. THE AREA OUTSIDE THE BUILDING WHERE CUTTING WELDING OR STORAGE IS ALLOWED IS TO BE FENCED AT ALL TIMES. THE CONTRACTOR WILL ON A DAILY BASIS CLEAN THE GROUNDS AND THE BUILDING OF ANY DEBRIS OR GARBAGE GENERATED BY THEIR WORK.

ABBREVIATIONS

EX-	EXISTING
A-	AMPERE
NF-	NON-FUSED
EXT-	EXTERIOR
AC-	ABOVE COUNTER
NIC-	NOT IN CONTRACT
FA-	FIRE ALARM
AFF-	ABOVE FINISHED FLOOR
NL-	NIGHT LIGHT
NTS-	NOT TO SCALE
FL-	FLOOR
AHU-	AIR HANDLING UNIT
OC-	ON CENTER
FLA-	FULL LOAD AMPS
A/V-	AUDIO/VISUAL
P-	POLE
FLUOR-	FLUORESCENT
AWG-	AMERICAN WIRE GAUGE
PNL-	PANEL
GC-	GENERAL CONTRACTOR
AU-	AT UNIT
PRI-	PRIMARY
GFI-	GROUND FAULT CIRCUIT
BKR-	BREAKER
SEC-	SECONDARY
C-	CONDUIT
GND-	GROUND
SW-	SWITCH
CB-	CIRCUIT BREAKER
HP-	HORSEPOWER
TEL-	TELEPHONE
CKT-	CIRCUIT
HVAC-	HEATING VENTILATION & AIR CONDITIONING
TV-	TELEVISION
CLG-	CEILING
TYP-	TYPICAL
DEMO-	DEMOLISH/DEMOLITION
KVA-	KILOVOLT AMPS
UGE-	UNDERGROUND ELECTRIC
DTL-	DETAIL
KW-	KILOWATTS
UNO-	UNLESS NOTED OTHERWISE
DWG-	DRAWING
LTC-	LIGHTING
EA-	EACH
MC-	MECHANICAL CONTRACTOR
EC-	ELECTRICAL CONTRACTOR
MCA-	MINIMUM CIRCUIT AMPS
WG-	WIRE GUARD
EF-	EXHAUST FAN
MCB-	MAIN CIRCUIT BREAKER
WP-	WEATHERPROOF
EM-	EMERGENCY
MDP-	MAIN DISTRIBUTION PANEL
XFMR-	TRANSFORMER
EC-	ELECTRICAL CONTRACTOR
MC-	MECHANICAL CONTRACTOR
PC-	PLUMBING CONTRACTOR
VIF-	VERIFY IN FIELD

NOTE: ABBREVIATIONS MAY OR MAY NOT USE PERIODS, EXAMPLE A.F.F. OR AFF

THIS A MAJOR PART OF THE DAY OR ANY DESIGN MATERIALS OF ANY KIND, UNDER THE AUTHORITY OF A LICENSED PROFESSIONAL ARCHITECT/ENGINEER. NO PART OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT/ENGINEER. THE DRAWING IS THE PROPERTY OF THE ARCHITECT/ENGINEER. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT/ENGINEER. THE DRAWING IS THE PROPERTY OF THE ARCHITECT/ENGINEER. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED.

ENGINEER:



CONSULTANT(S):

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E&R PROJECT NO. 50-19-01

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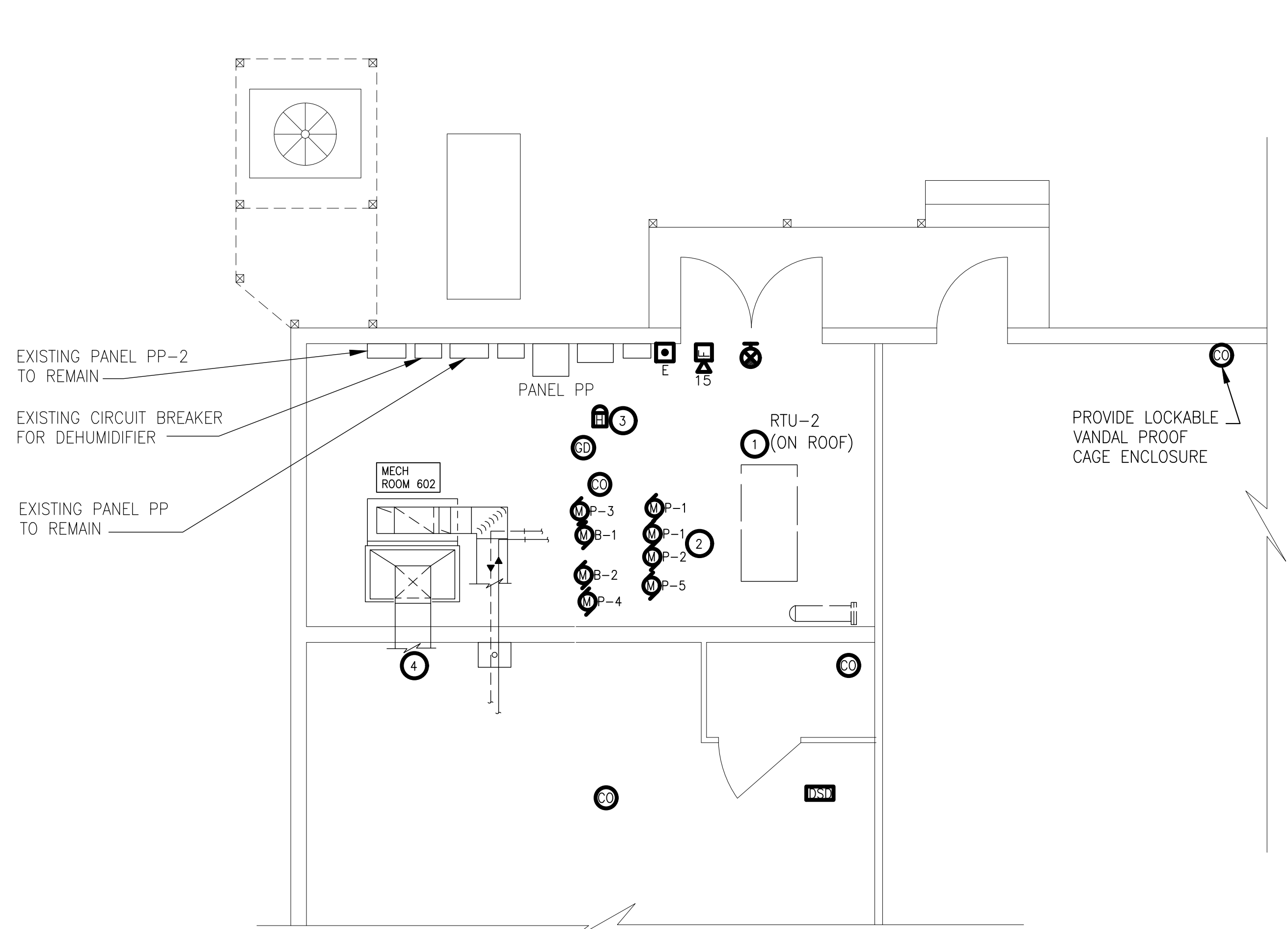
SHEET TITLE

ABBREVIATIONS
AND SYMBOLS

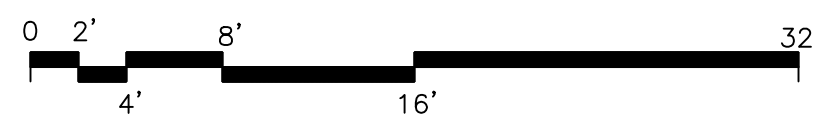
SHEET NO.

E-001

FILE PATH: N:\1 - PROJECT DIRECTORIES\1 - E & R Projects\50-Green Chimneys Farm & Wildlife\50-19-01 Green Chimneys Food & Gym HVAC Upgrades\CAD\50-19-01 E001.dwg

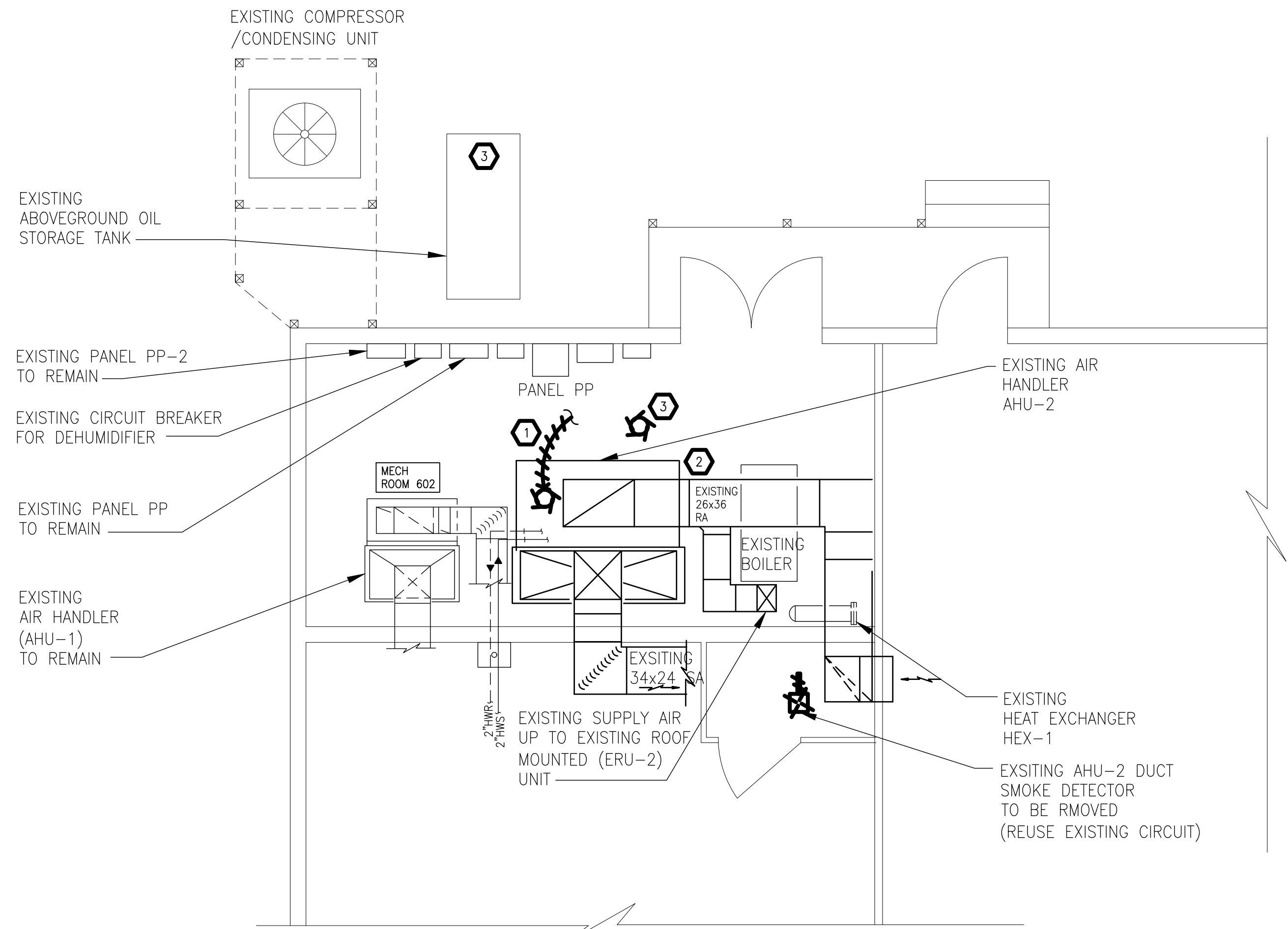


NOTE: MECHANICAL EQUIPMENT SHOWN FOR REFERENCE ONLY
2 MECHANICAL ROOM 602 - NEW WORK
SCALE: 1/4"=1'-0"



KEYED NOTES — NEW WORK:

- 1 PROVIDE NEW CIRCUIT BREAKER FOR NEW ROOF TOP UNIT. SEE ADDITIONAL INFORMATION ON E-500.
- 2 PROVIDE NEW CIRCUIT BREAKERS AND 3/4" CONDUIT TO NEW PUMPS. REUSE EXISTING CIRCUIT IN PANEL.
- 3 PROVIDE NEW HEAT DETECTORS. REUSE EXISTING CIRCUITS.
- 4 PROVIDE POWER TO ULTRAVIOLET LIGHT FROM PP-2, 2-#12, 1#12 GRD IN 3"C 208V

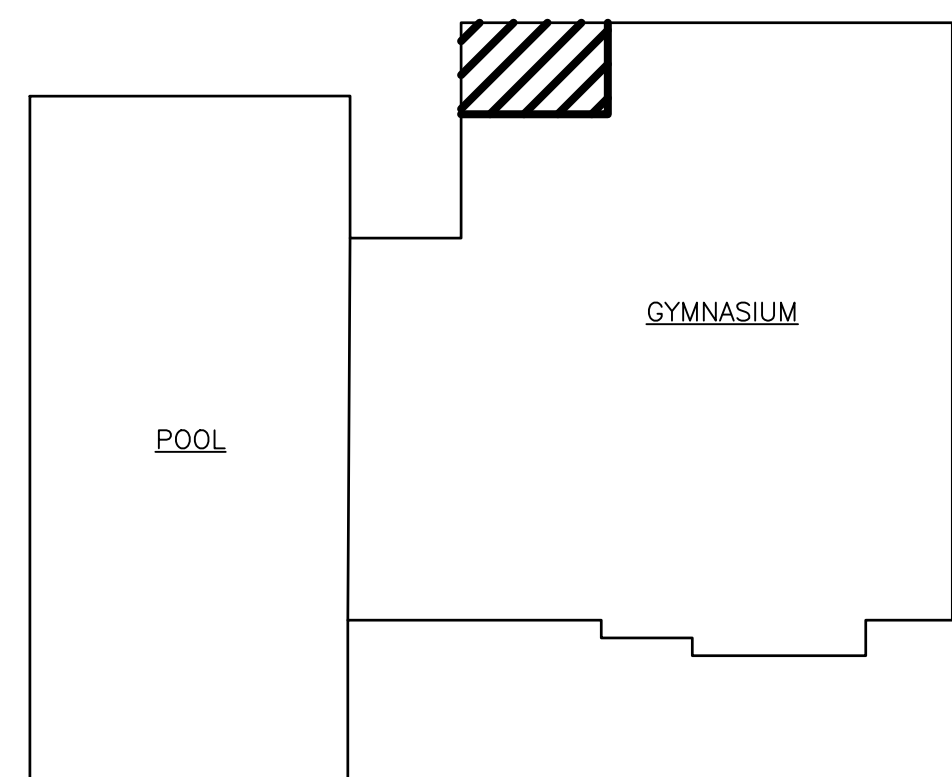


NOTE: MECHANICAL EQUIPMENT SHOWN FOR REFERENCE ONLY
1 MECHANICAL ROOM 602 - DEMOLITION
SCALE: 1/4"=1'-0"



KEYED NOTES — DEMOLITION

- 1 REMOVE CIRCUIT AND CONDUIT BACK TO RESPECTIVE PANEL. PREPARE FOR NEW WORK.
- 2 DISCONNECT POWER TO PUMPS P-1, P-1 AND P-2 AND REMOVE CONDUIT BACK TO RESPECTIVE PANEL. PREPARE FOR NEW WORK.
- 3 REMOVE HEAT DETECTORS. PREPARE FOR NEW WORK.
- 4 DISCONNECT POWER TO PUMP AND REMOVE WIRING AND CONDUIT BACK TO RESPECTIVE PANEL.

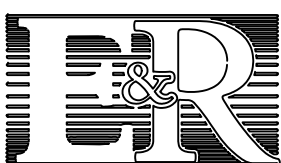


KEY-PLAN
SCALE: NONE



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HVAC UPGRADE**

400 Doansburg Road, Brewster, N.Y.

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EMR PROJECT NO. 50-19-01

REVISION	DATE	BY
DATE	12.23.2020	
DRAWN BY	JMJ	
CHECKED BY	JJE	
SHEET SIZE	30x42	
SCALE	AS NOTED	

SHEET TITLE
**MECHANICAL PLANS
DEMOLITION AND
NEW WORK**

SHEET NO.

E-100

